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(54) **COOKING APPLIANCE**

(71) Applicant: **SAMSUNG ELECTRONICS CO., LTD.**, Suwon-si (KR)

(72) Inventors: **Wangi PARK**, Suwon-si (KR); **Jaemin PARK**, Suwon-si (KR)

(73) Assignee: **SAMSUNG ELECTRONICS CO., LTD.**, Suwon-si (KR)

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CPC ***F24C 15/022*** (2013.01); ***E05D 11/1007*** (2013.01); ***F24C 15/023*** (2013.01)

(57) **ABSTRACT**

A cooking appliance including a main body forming a cooking chamber; a door configured to open and close the cooking chamber; and a hinge assembly which connects the main body and the door, wherein the hinge assembly includes a door bracket coupled to the door, a main body bracket coupled to the main body, a hinge link that connects the door bracket and the main body bracket, and supports the door bracket so as to be rotatable, and a locking member coupled to the hinge link. When the cooking chamber is closed by the door, the engaging portion is engaged with the main body bracket to fix a position of the door bracket, and, to prevent the engaging portion from deviating from the main body bracket, the deviation prevention portion interferes with the door bracket if the engaging portion moves in a direction away from the main body bracket.

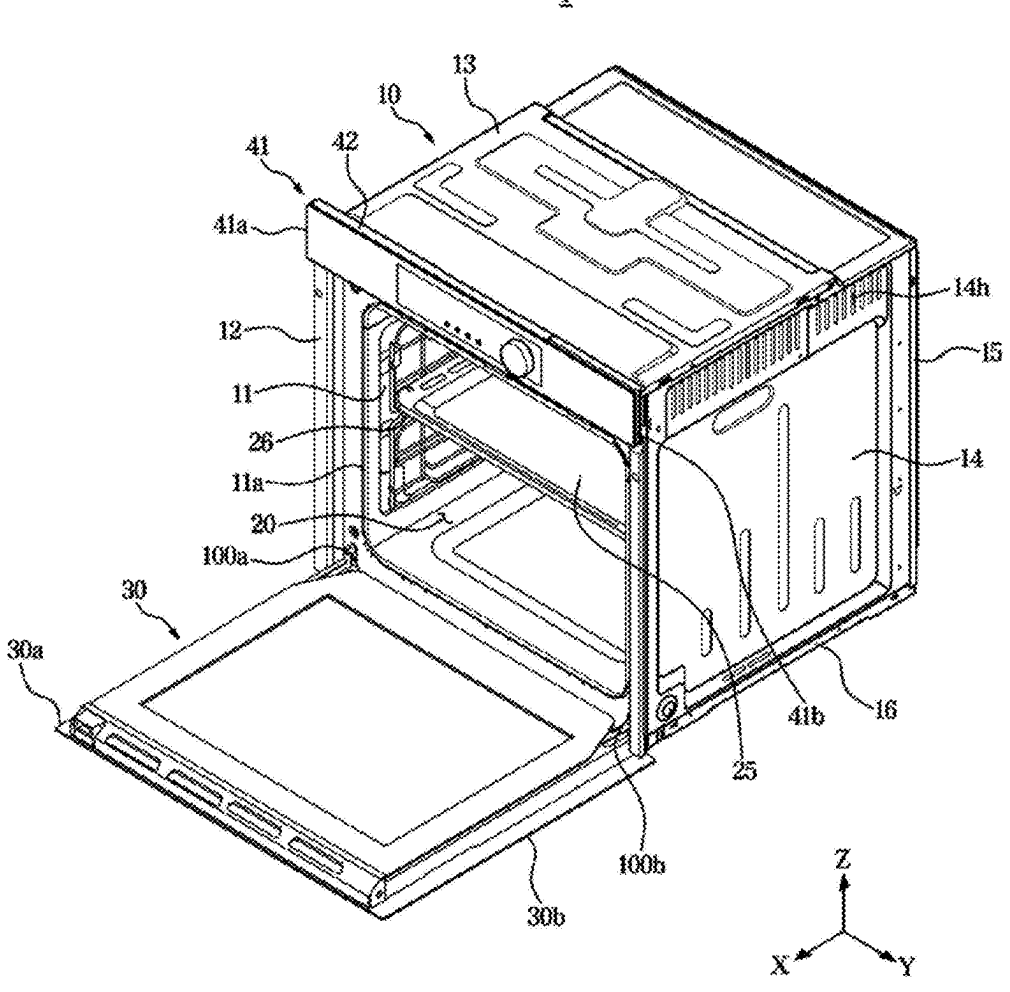

FIG. 1

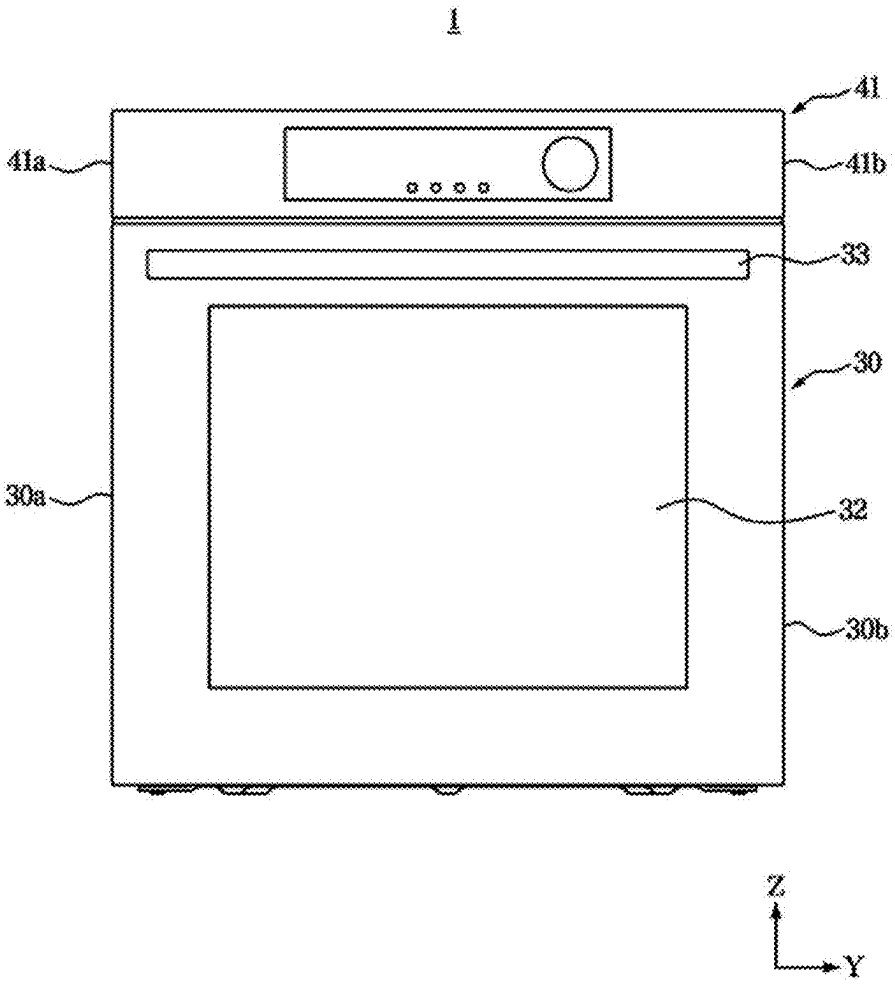

FIG. 2

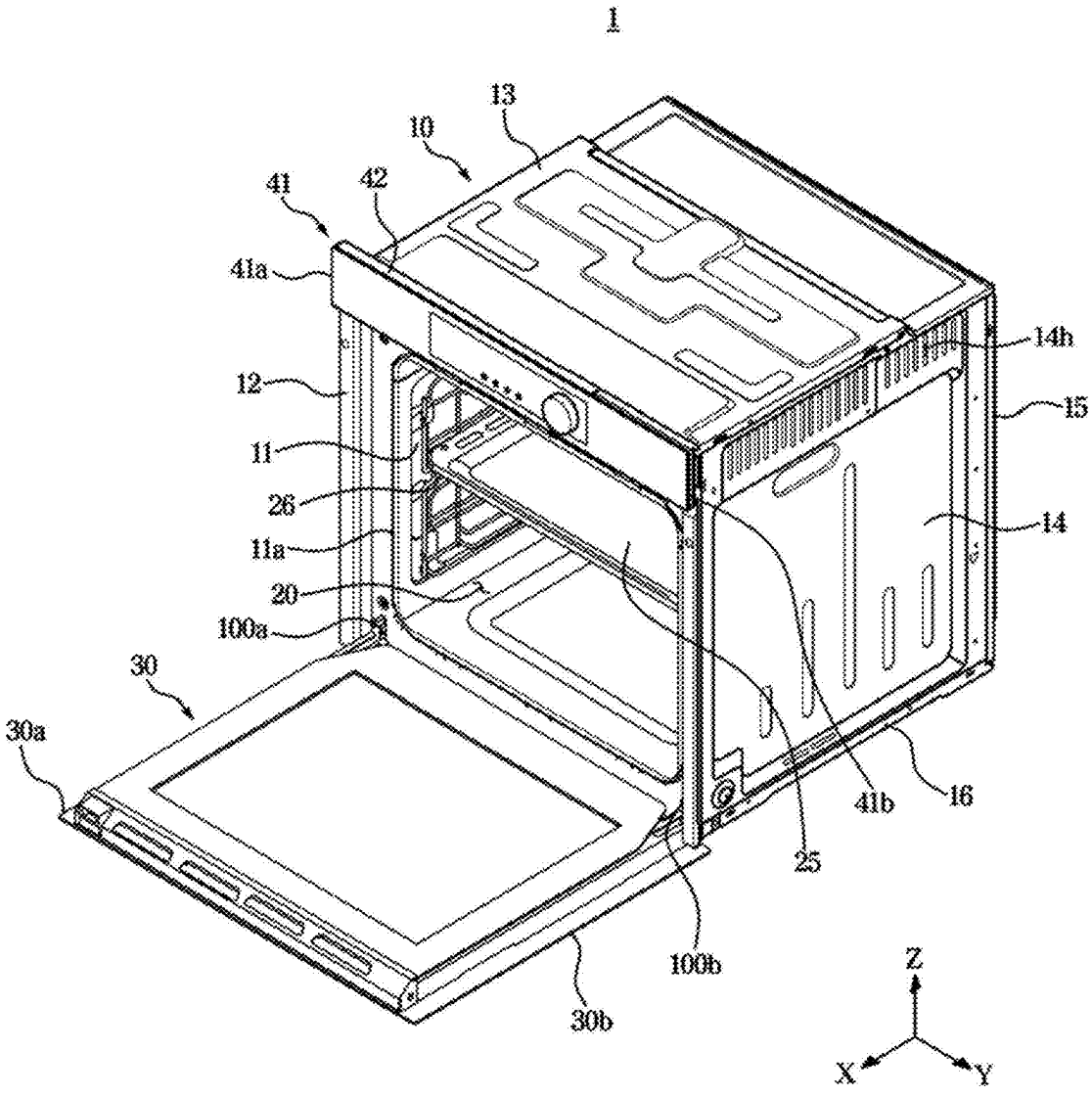
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FIG. 3

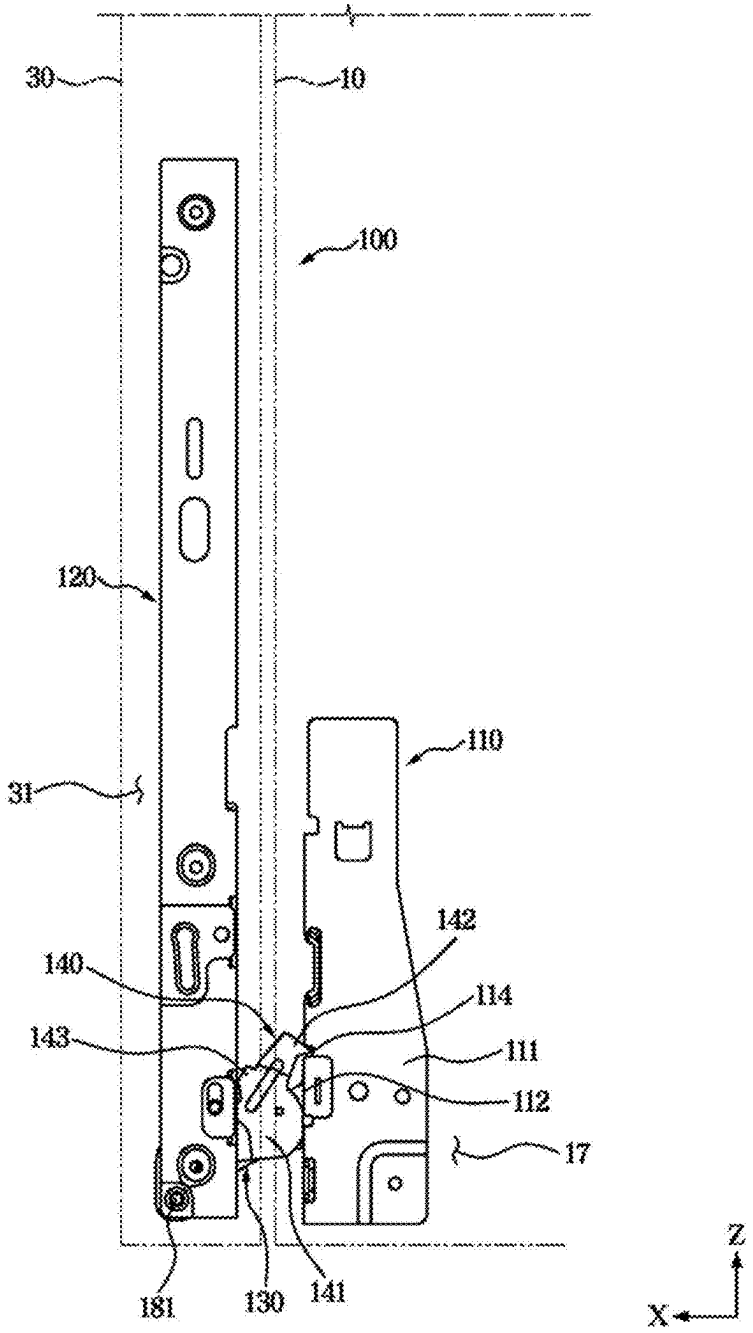

FIG. 4

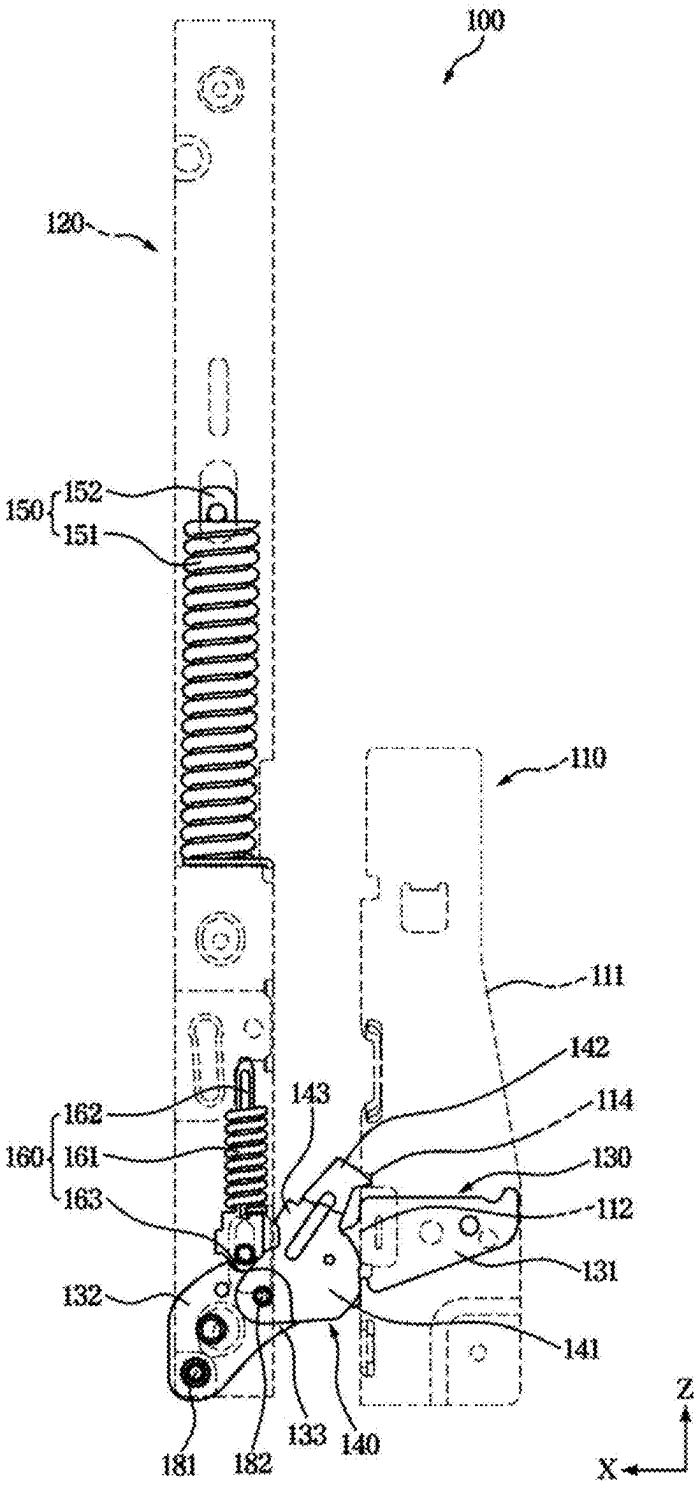
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FIG. 5

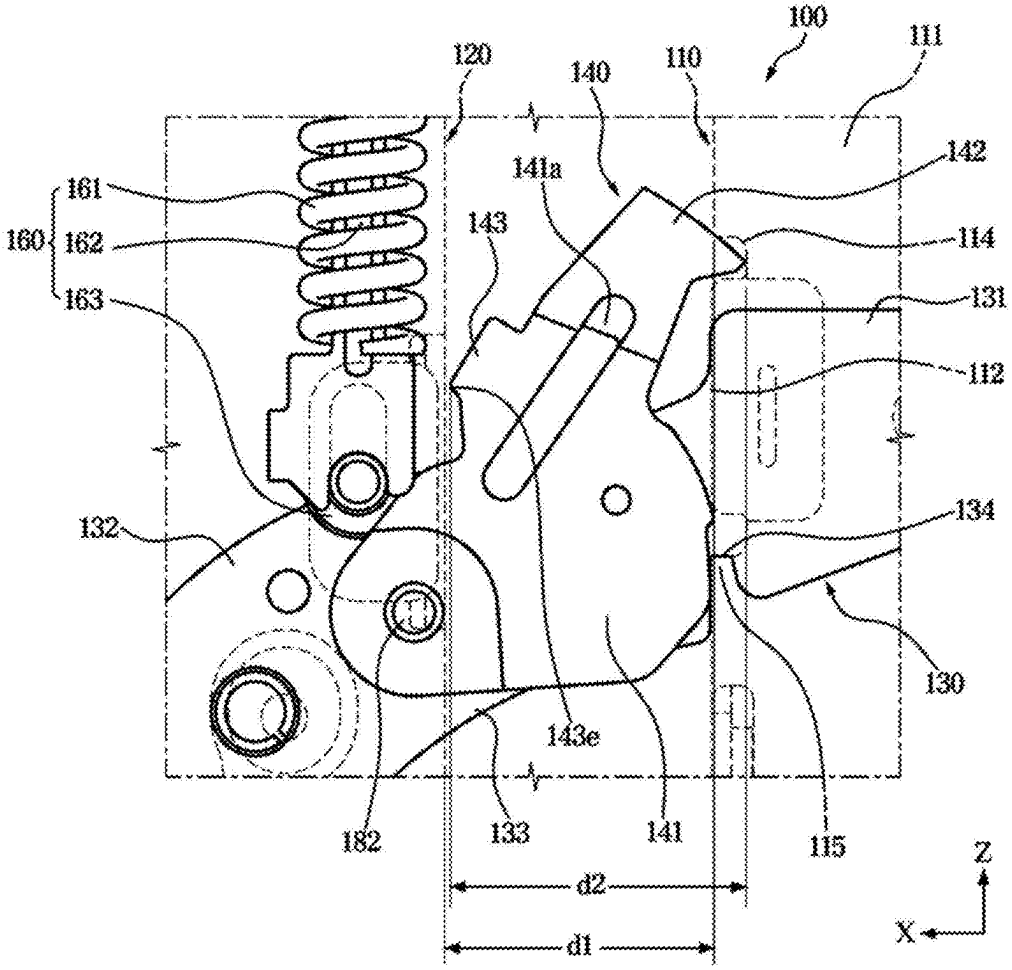
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FIG. 6

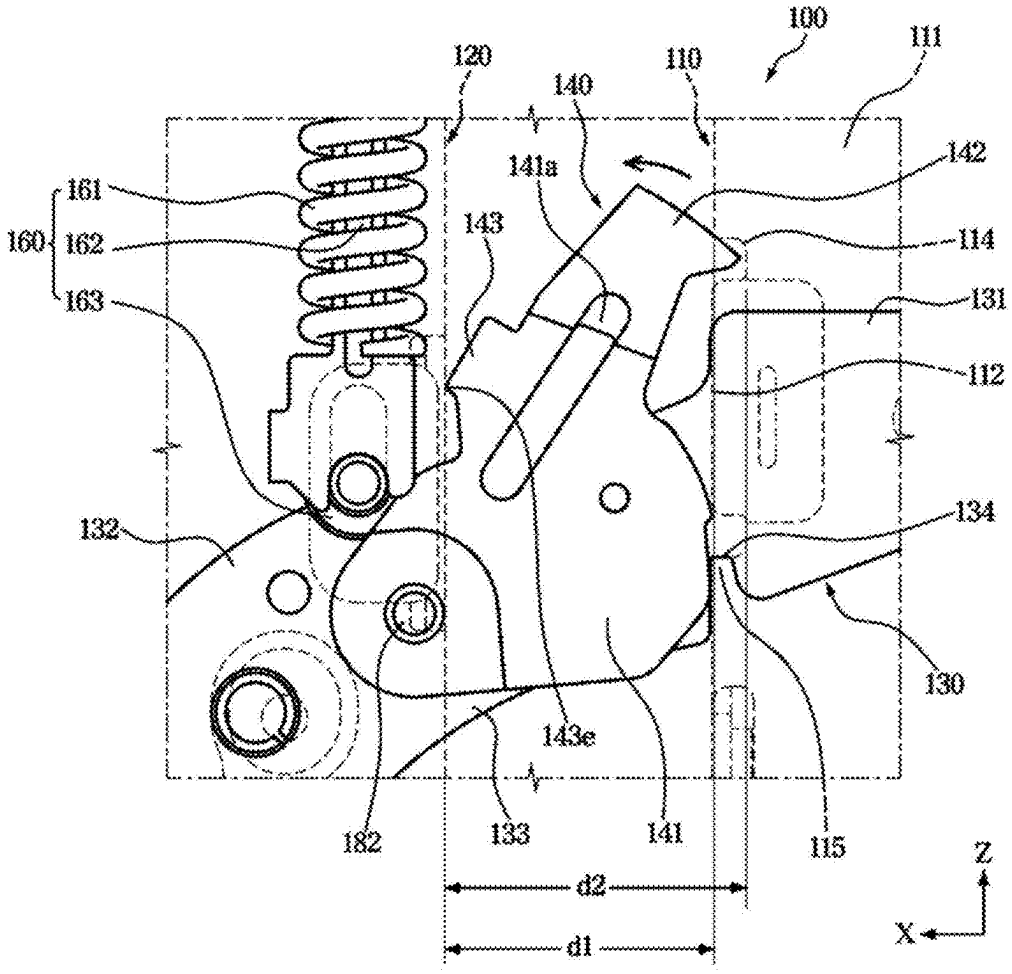
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FIG. 7

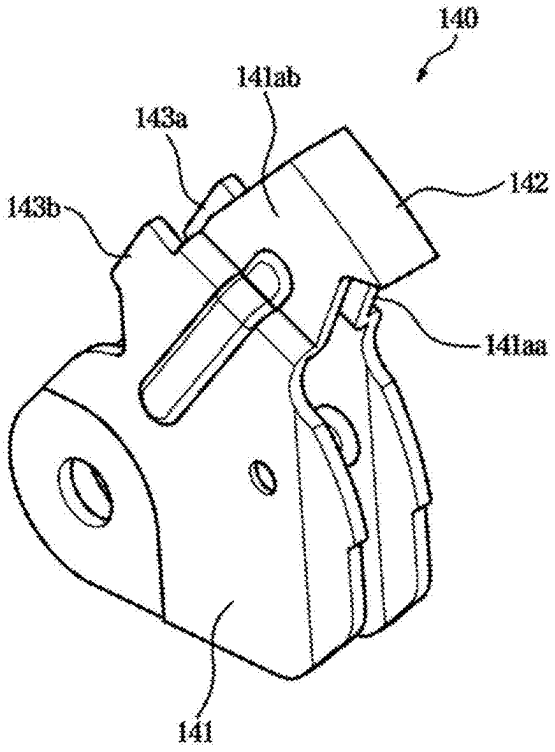

FIG. 8

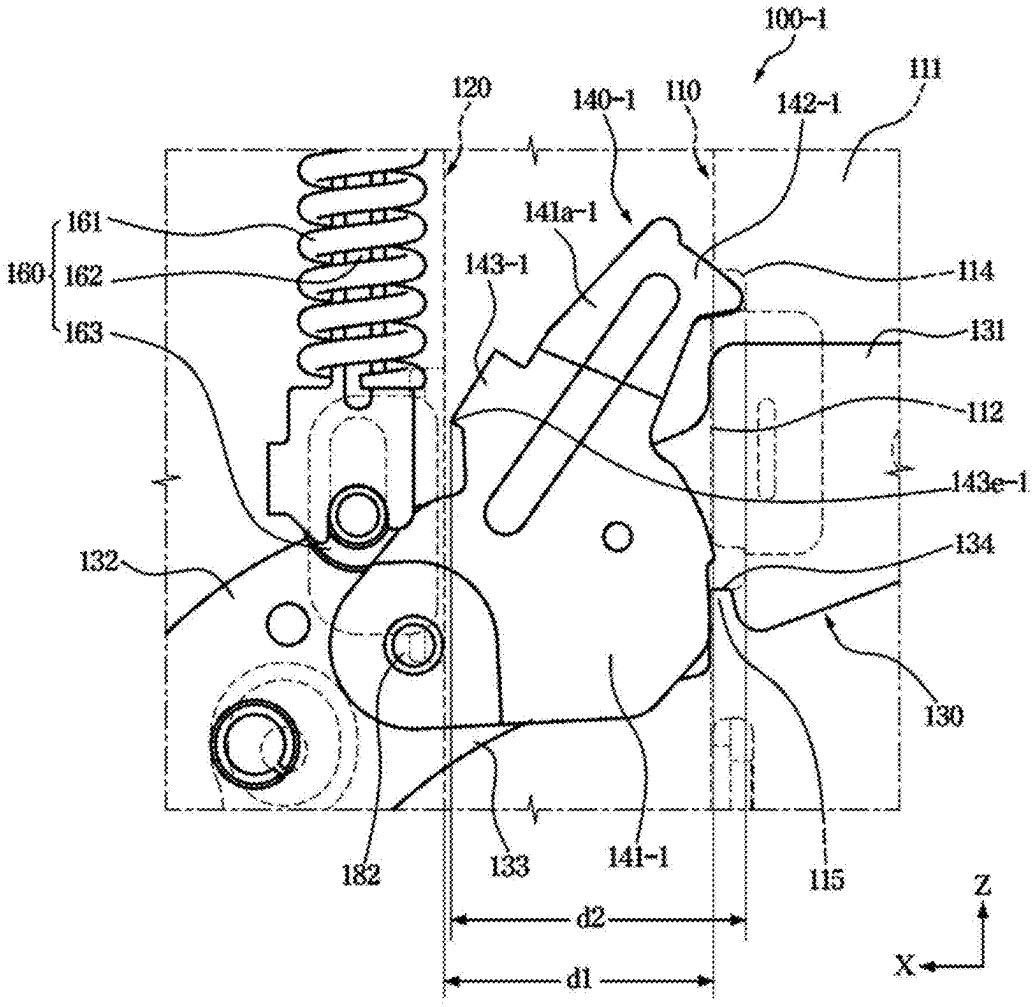
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FIG. 9

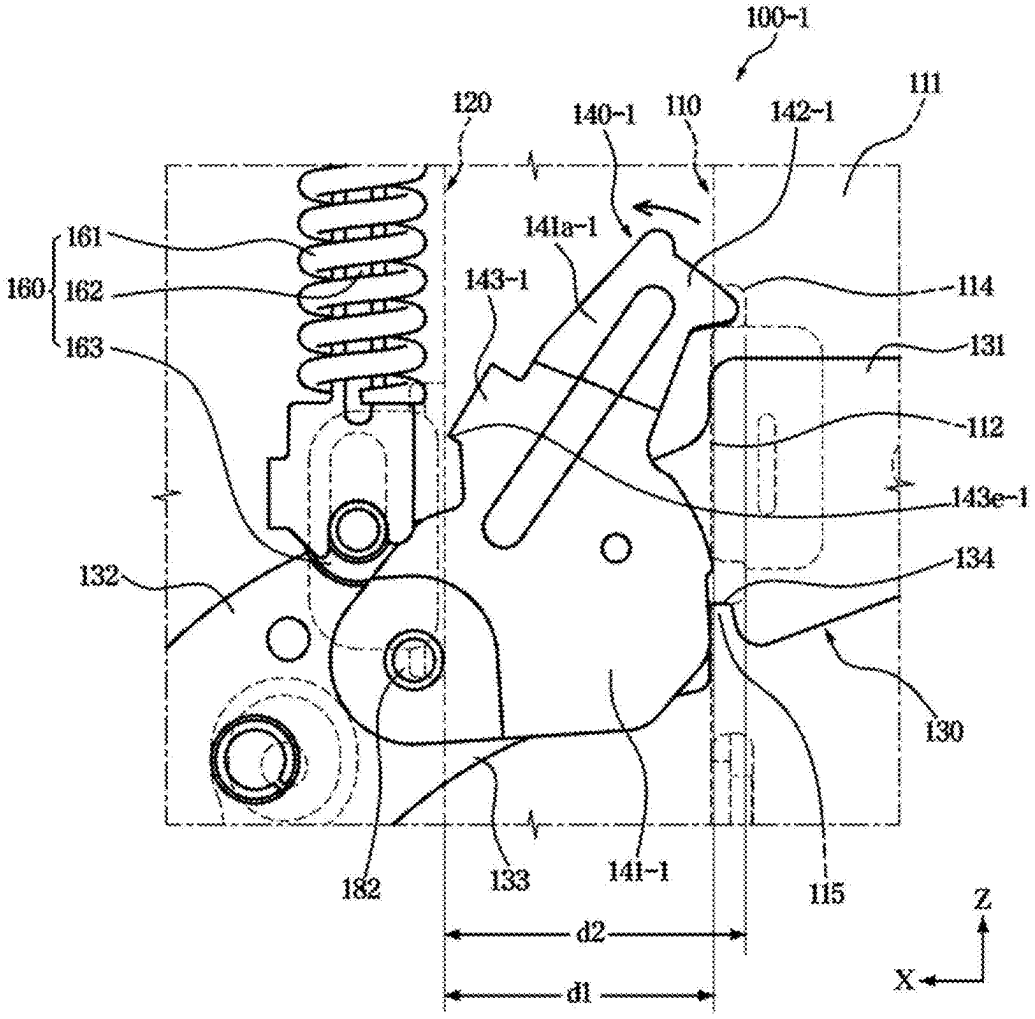
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FIG. 10

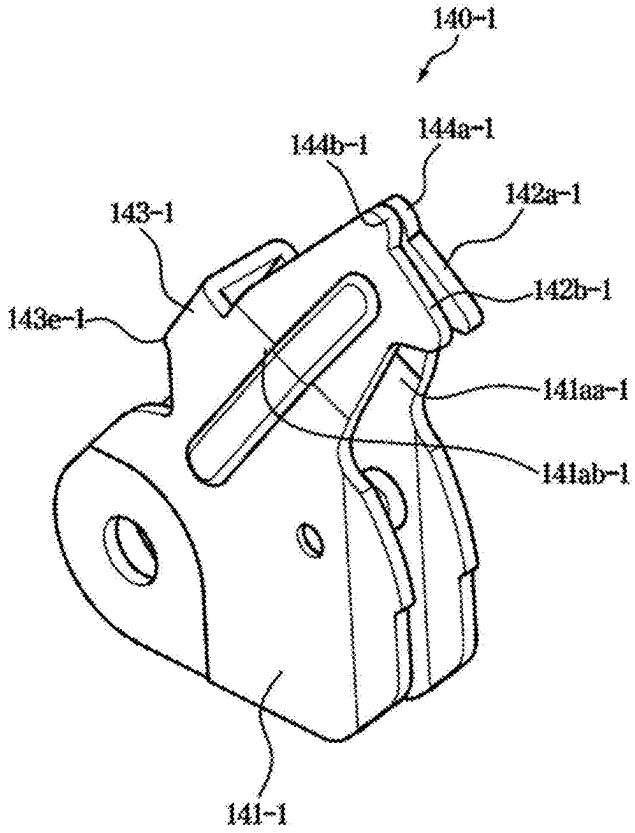

FIG. 11

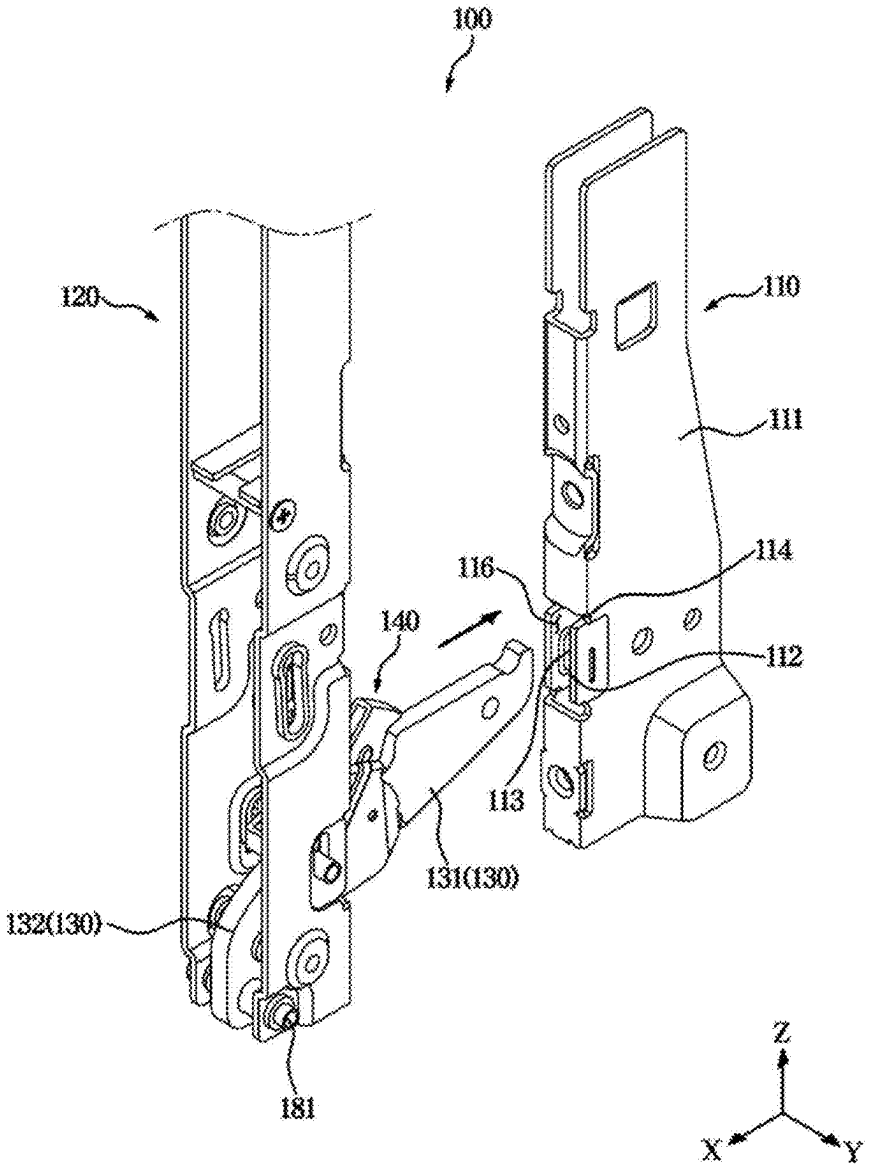

FIG. 12

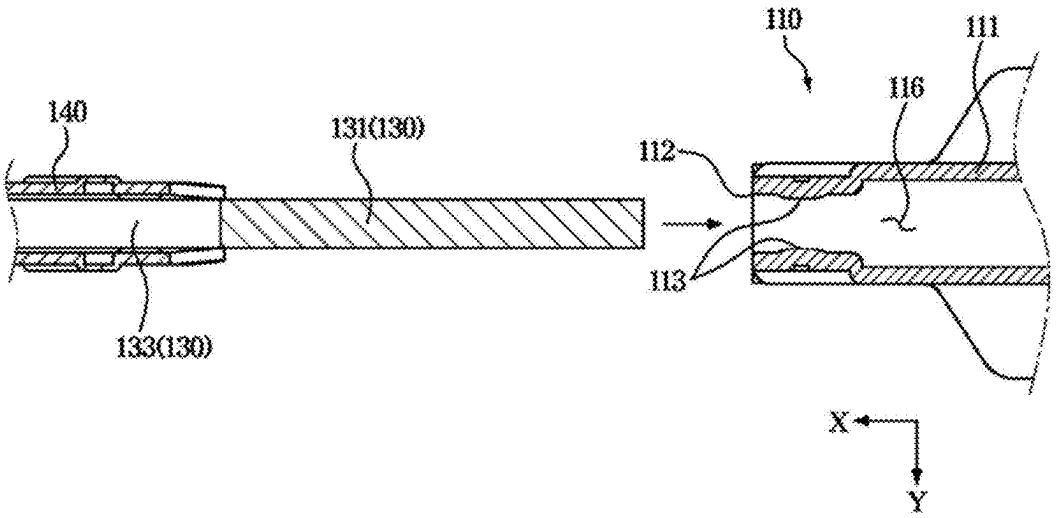

FIG. 13

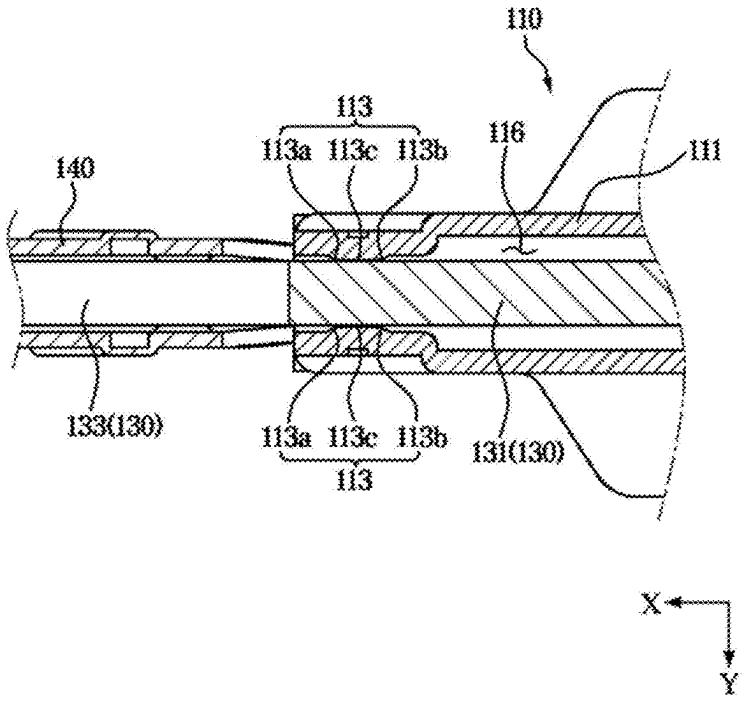
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FIG. 14

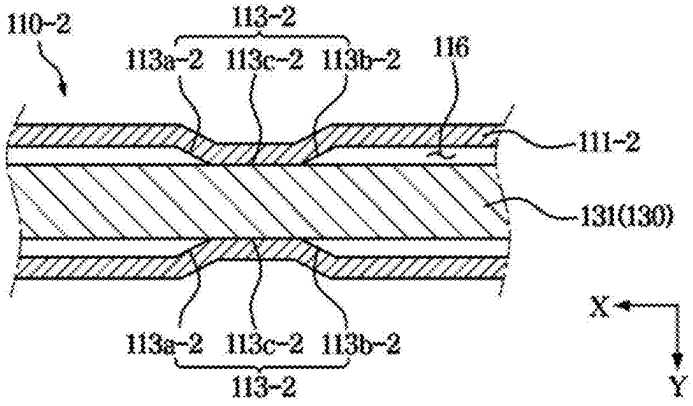
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FIG. 15

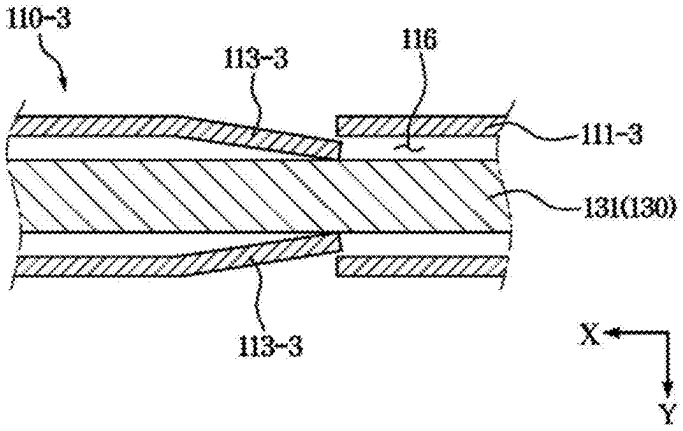

FIG. 16

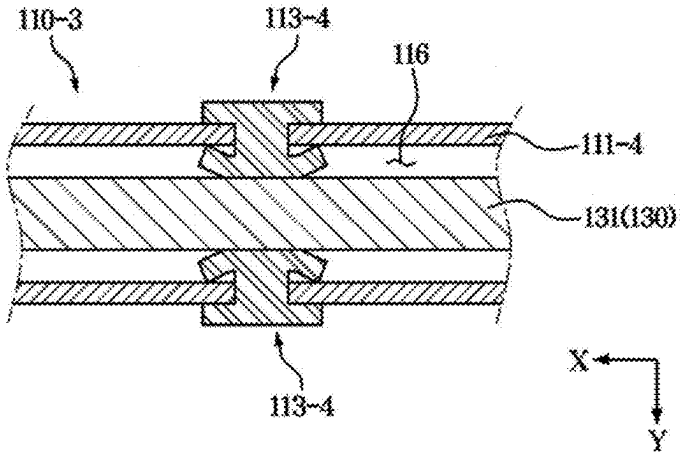

FIG. 17

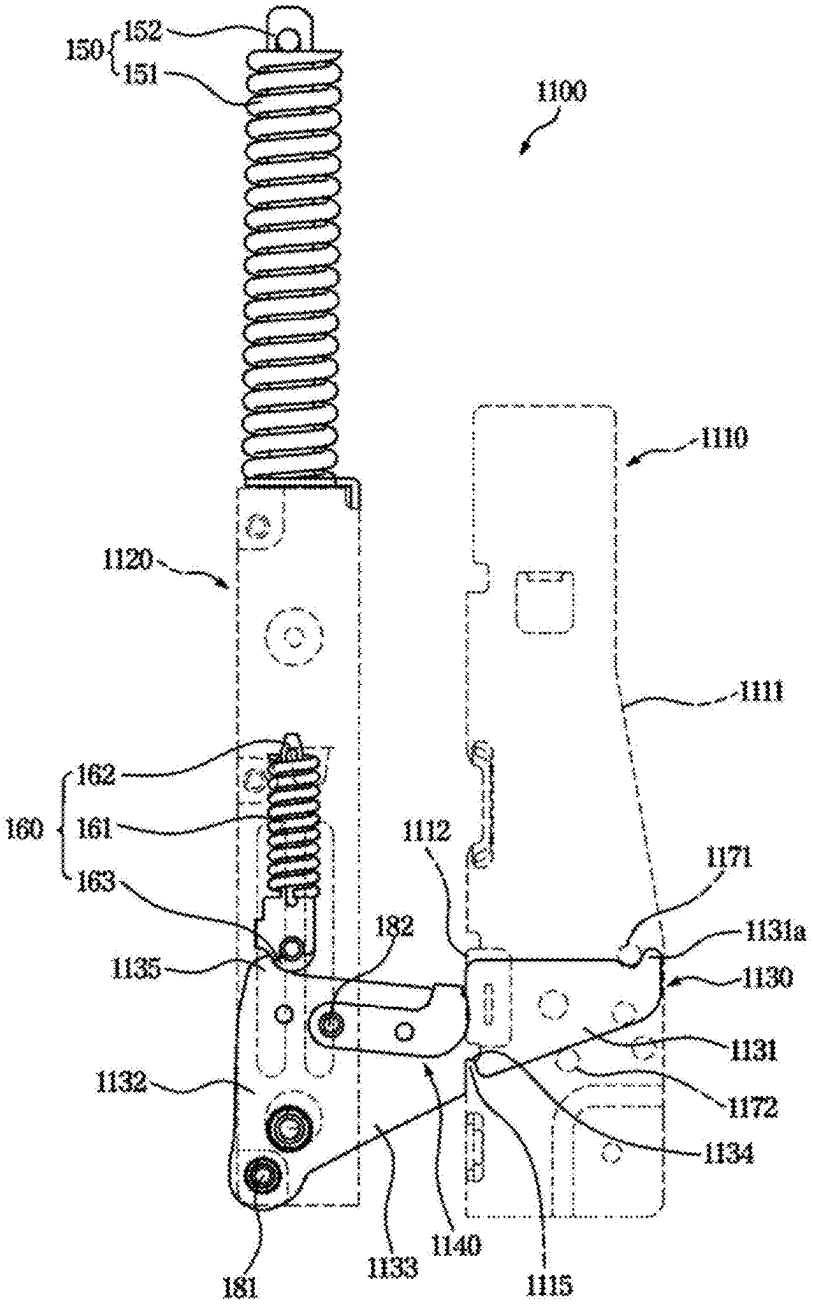
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FIG. 18

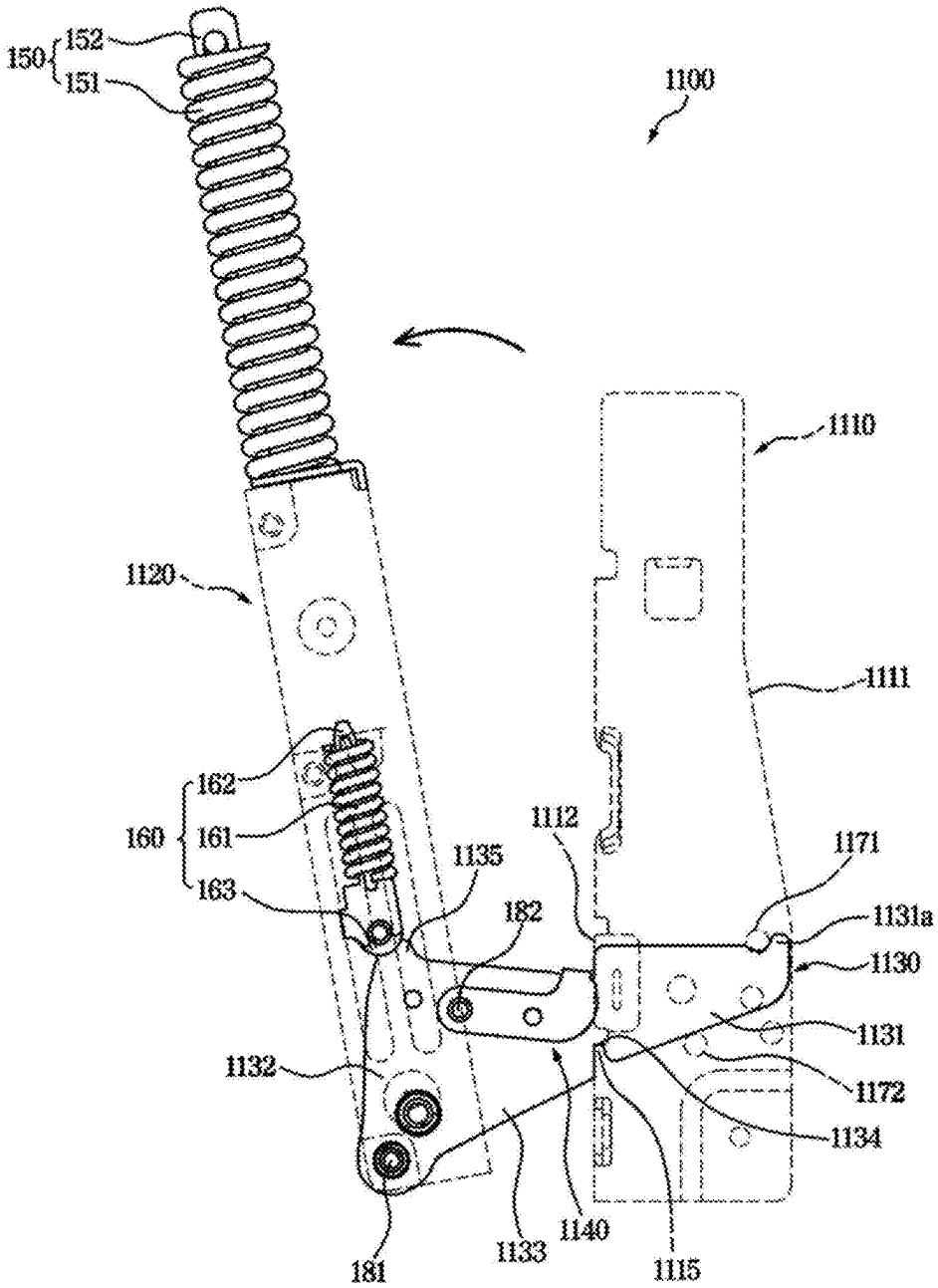
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FIG. 19

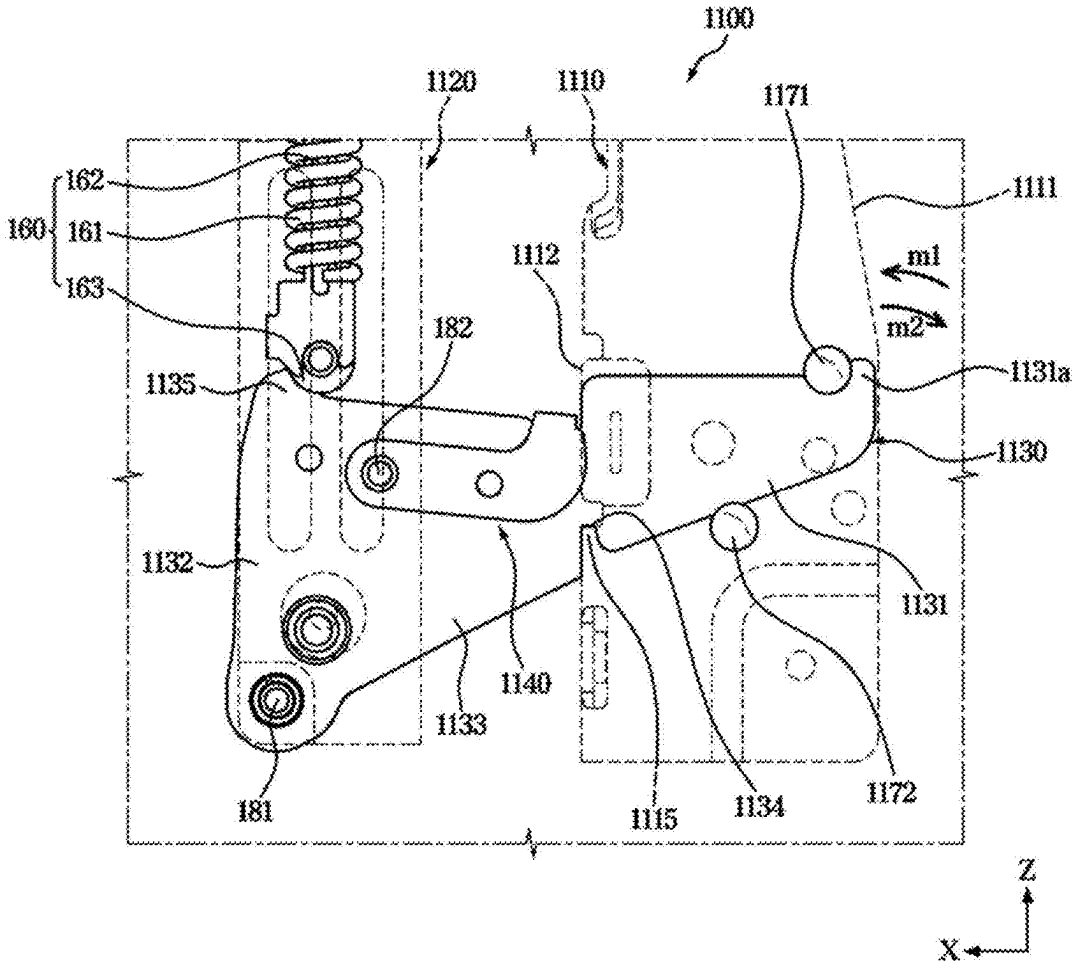
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FIG. 20

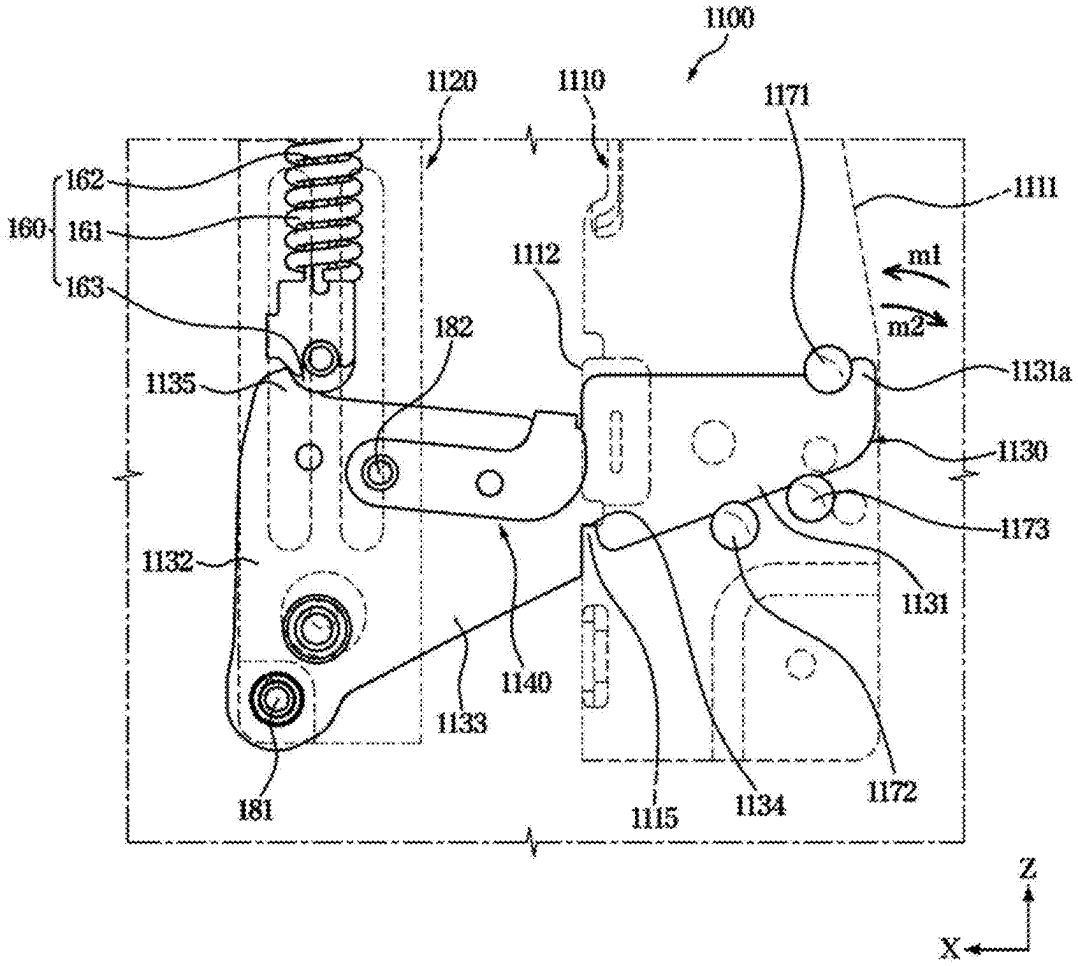
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FIG. 21

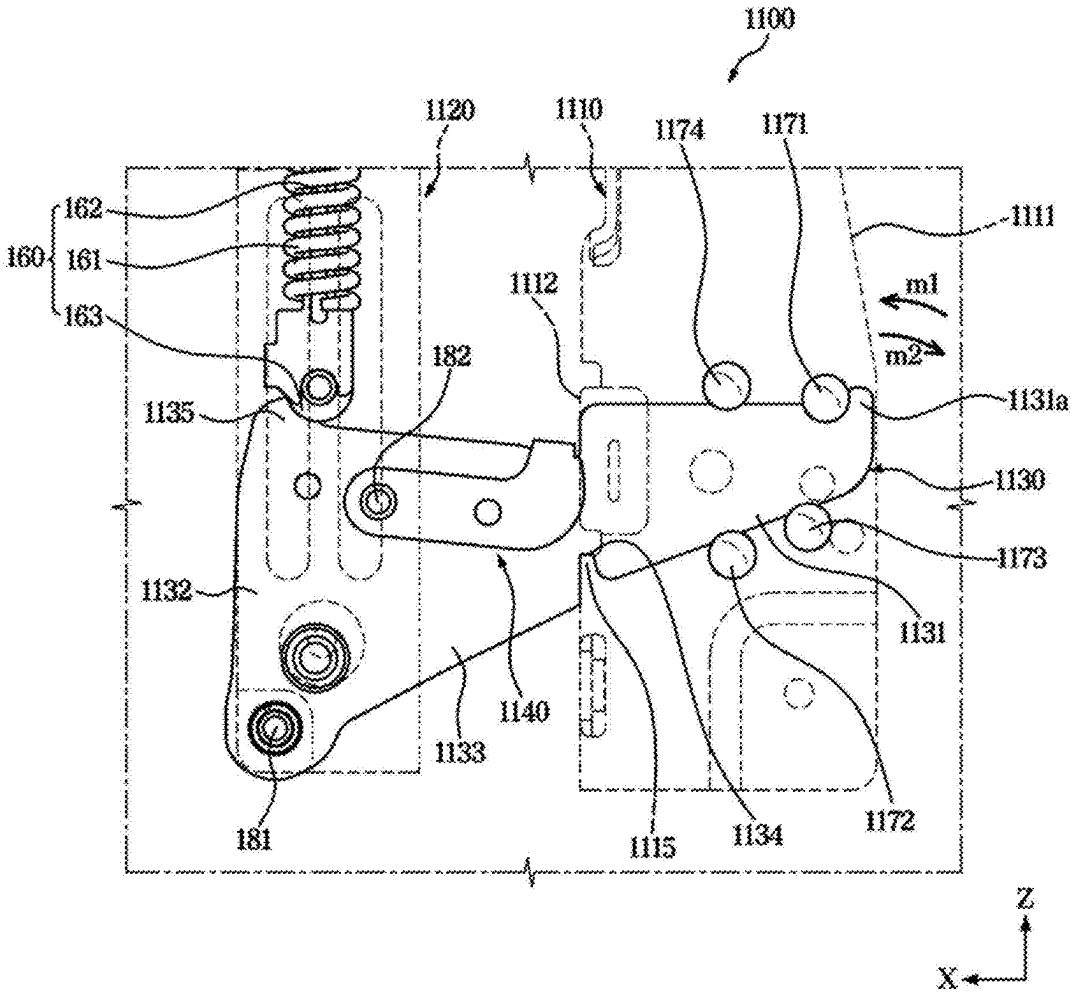
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FIG. 22

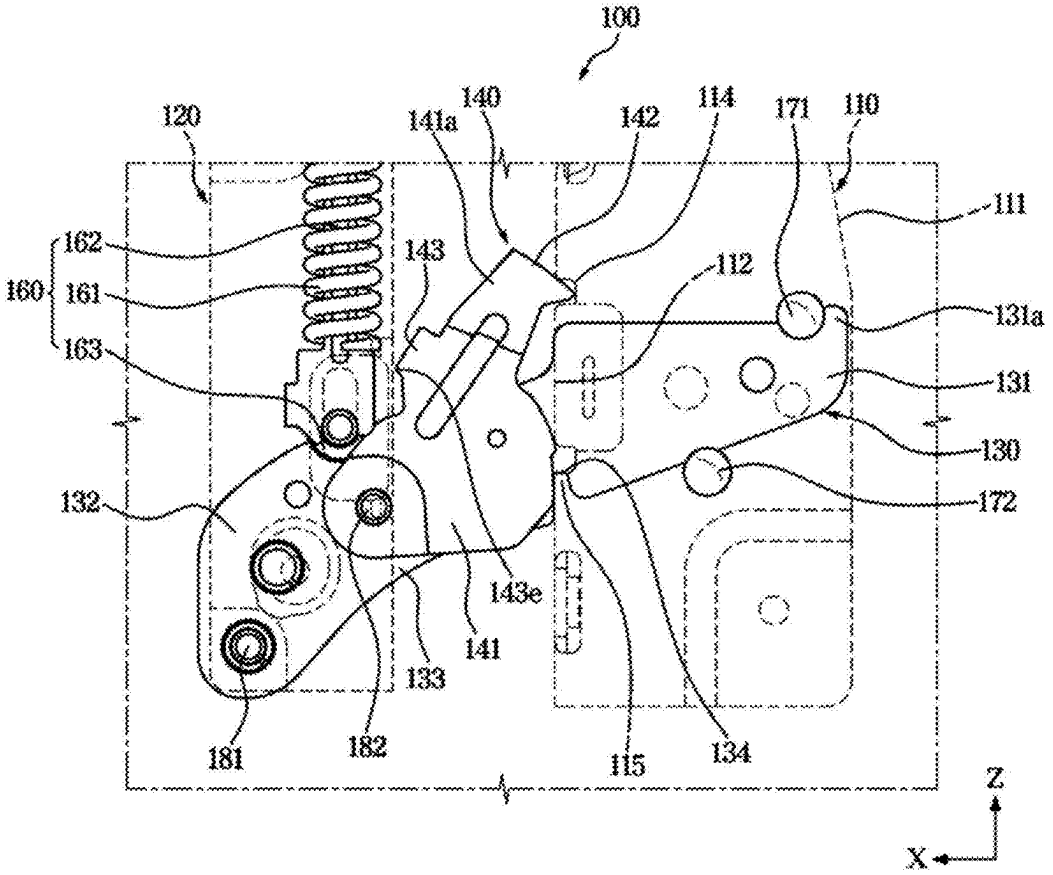
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FIG. 23

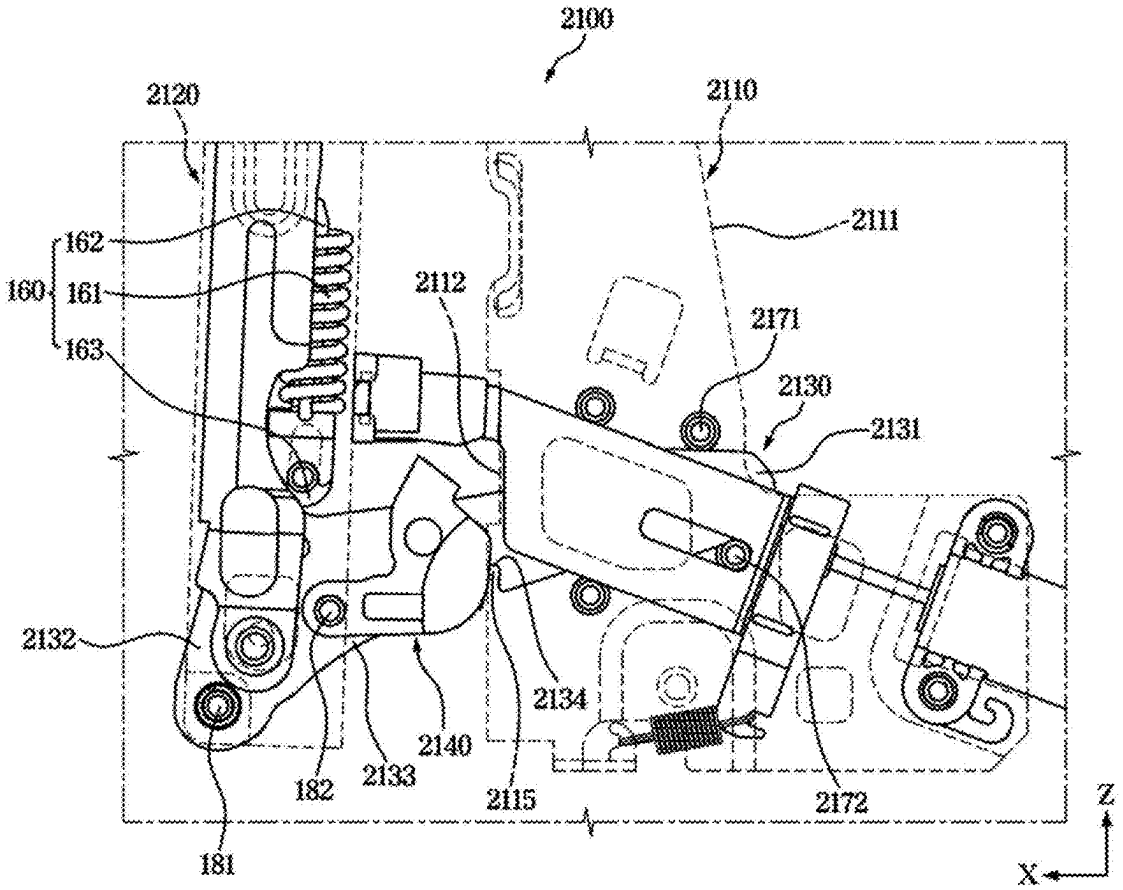
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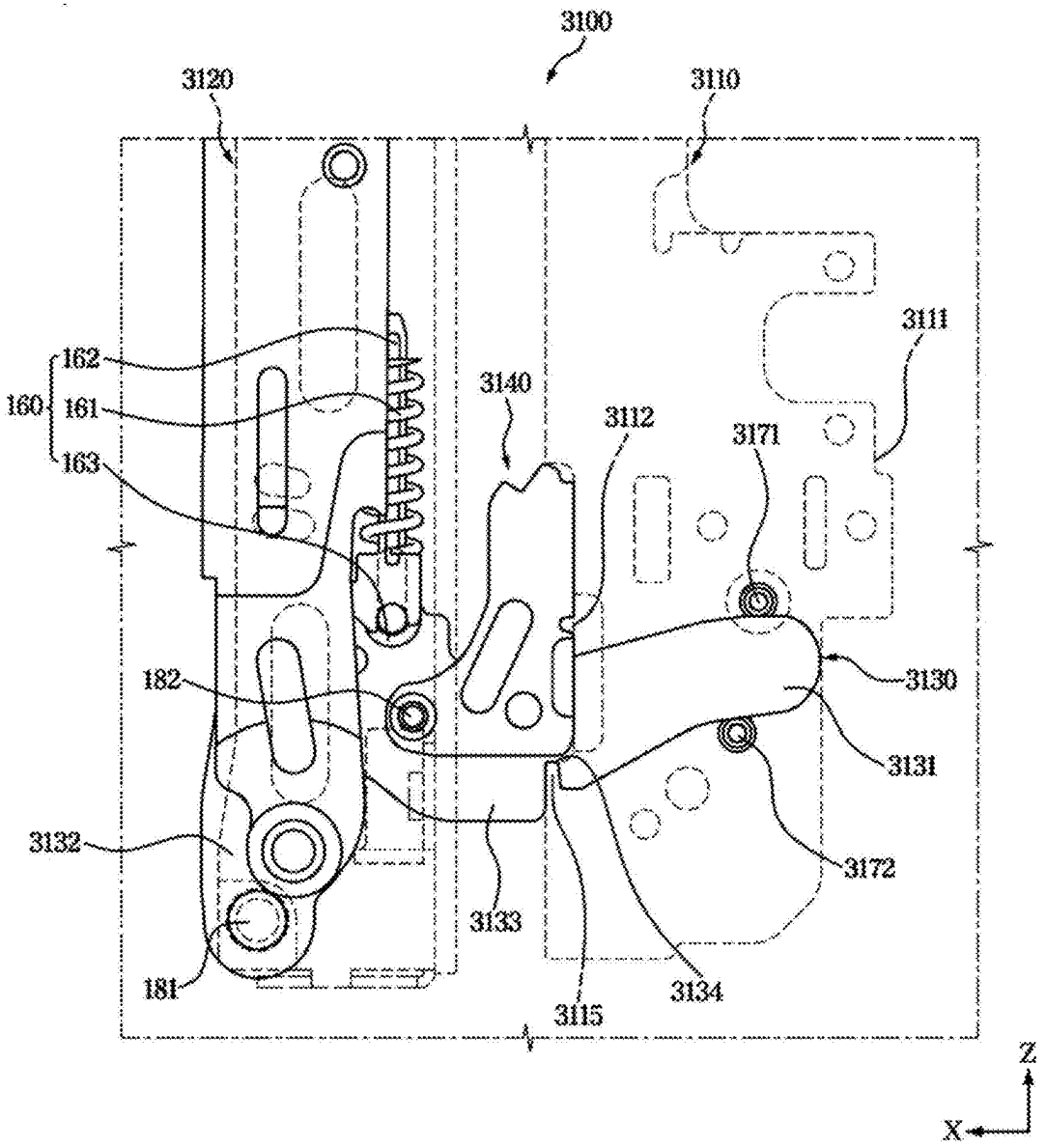
FIG. 24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COOKING APPLIANCE

[0001] This application is a continuation application of International Application No. PCT/KR2023/016375, filed on Oct. 20, 2023, which is based on and claims the benefit of Korean Patent Application Number 10-2022-0159661, filed on Nov. 24, 2022, and Korean Patent Application Number 10-2023-0008916, filed on Jan. 20, 2023, the disclosures of which are incorporated by reference herein in their entireties.

TECHNICAL FIELD

[0002] The present disclosure relates to a cooking apparatus having a hinge connecting a main body and a door.

BACKGROUND ART

[0003] Cooking apparatuses are apparatuses for cooking by heating a cooking object such as food, and refer to apparatuses capable of providing various functions related to cooking, such as heating, thawing, drying, and sterilization of a cooking object. Cooking apparatuses include, for example, an oven such as a gas oven and an electric oven, a microwave heating device (hereinafter referred to as a microwave oven), a gas range, an electric range, a hood combined microwave oven (Over the Range, or OTR), a gas grill or an electric grill, and the like.

[0004] Ovens are apparatuses that cook food by directly transferring heat to the food through a heating source such as a heater or by heating the inside of a cooking chamber. Microwave ovens are apparatuses that cook food by frictional heat generated between molecules by disturbing a molecular arrangement of the food using high frequency as a heating source.

[0005] An oven includes a cooking chamber for cooking food and an electrical room for storing electrical components. The inside of the cooking chamber is sealed to prevent high temperature heat from escaping to the outside in a process of cooking food.

[0006] An oven includes a main body forming a cooking chamber and an electrical room inside, and a door for opening and closing the cooking chamber. The door may be rotatably supported by a hinge connecting the door and the main body.

Disclosure

[0007] An embodiment of the present disclosure is directed to providing a cooking apparatus having an improved structure so that a door of the cooking apparatus may be stably supported by a hinge assembly.

[0008] An embodiment of the present disclosure is directed to providing a cooking apparatus having an improved structure to prevent a door from deviating from a designed position.

[0009] An embodiment of the present disclosure is directed to providing a cooking apparatus having an improved structure such that the external quality of a product is improved.

[0010] An embodiment of the present disclosure is directed to providing a cooking apparatus having an improved structure such that a hinge link of a hinge assembly may be stably supported on a main body bracket.

[0011] An embodiment of the present disclosure is directed to providing a cooking apparatus having an improved structure to prevent noise or vibration from occurring when a door rotates relative to a main body.

[0012] Technical tasks to be achieved in this document are not limited to the technical tasks mentioned above, and other technical tasks not mentioned will be clearly understood by those skilled in the art to which the present invention belongs from the description below.

[0013] Aspects of embodiments of the disclosure will be set forth in part in the description which follows and, in part, will be apparent from the description, or may be learned by practice of the presented embodiments.

[0014] According to an embodiment of the disclosure, a cooking apparatus including a main body forming a cooking chamber; a door configured to open and close the cooking chamber; and a hinge assembly which connects the main body and the door, wherein the hinge assembly includes a door bracket coupled to the door, a main body bracket coupled to the main body, a hinge link that connects the door bracket and the main body bracket, and supports the door bracket so as to be rotatable, and a locking member coupled to the hinge link, and including an engaging portion, and a deviation prevention portion, wherein the locking member is configured so that, when the door is positioned to close the cooking chamber, the engaging portion is engaged with the main body bracket to fix a position of the door bracket, and, to prevent the engaging portion from deviating from the main body bracket, the deviation prevention portion is positioned to interfere with the door bracket based on movement of the engaging portion in a direction away from the main body bracket.

[0015] According to an embodiment of the disclosure, the main body bracket may include an insertion portion. When the door is positioned to close the cooking chamber, at least a portion of the engaging portion may be inserted into the insertion portion.

[0016] According to an embodiment of the disclosure, when the door is positioned to close the cooking chamber, a distance between the door bracket and the main body bracket may be shorter than a distance between an end of the engaging portion in a direction of being inserted into the insertion portion and an end of the deviation prevention portion positioned to interfere with the door bracket.

[0017] According to an embodiment of the disclosure, when the door is positioned to close the cooking chamber, the locking member may be configured to be positioned between a first position in which the engaging portion is maximally inserted into the insertion portion and a second position in which the engaging portion moves in a direction away from the insertion portion, and the deviation prevention portion may be configured to come into contact with the door bracket when the locking member is in the second position.

[0018] According to an embodiment of the disclosure, the deviation prevention portion may extend in a direction away from a tip configured to contact the door bracket when the locking member is in the second position.

[0019] According to an embodiment of the disclosure, the locking member may include a locking body coupled to the hinge link. The engaging portion may protrude from the locking body toward an inner side of the insertion portion.

[0020] According to an embodiment of the disclosure, the locking member may include a locking body coupled to the

hinge link. The deviation prevention portion may protrude from the locking body in the direction away from the main body bracket.

[0021] According to an embodiment of the disclosure, the cooking apparatus may further include a coupling shaft coupling the locking member to the hinge link. The locking member may be configured to be rotatable relative to the hinge link about the coupling shaft.

[0022] According to an embodiment of the disclosure, a distance from the coupling shaft to the deviation prevention portion may be shorter than a distance from the coupling shaft to the engaging portion.

[0023] According to an embodiment of the disclosure, the deviation prevention portion may include a plurality of deviation prevention portions disposed to be spaced apart from each other. The locking member may include a plurality of extension portions extending respectively from the plurality of deviation prevention portions to the engaging portion. The engaging portion may connect the plurality of extension portions to each other.

[0024] According to an embodiment of the disclosure, the engaging portion may include a plurality of engaging portions separated from each other. The locking member may include a plurality of extension portions extending respectively from a plurality of the engaging portions, toward the deviation prevention portion. The deviation prevention portion may connect the plurality of extension portions to each other.

[0025] According to an embodiment of the disclosure, a cooking apparatus may include a main body forming a cooking chamber, a door configured to open and close the cooking chamber, and a hinge assembly which connects the main body and the door. The hinge assembly may include a door bracket coupled to the door, a main body bracket coupled to the main body, and a hinge link configured to connect the door bracket and the main body bracket and support the door bracket such that the door bracket is rotatable relative to the main body bracket, and having at least a portion accommodated in the main body bracket. The main body bracket may include a protrusion portion formed to protrude toward the at least a portion of the hinge link accommodated in the main body bracket to prevent the hinge link from moving.

[0026] According to an embodiment of the disclosure, a cooking apparatus may include a main body forming a cooking chamber, a door configured to open and close the cooking chamber, and a hinge assembly which connects the main body and the door. The hinge assembly may include a door bracket coupled to the door, a main body bracket coupled to the main body, a hinge link configured to connect the door bracket and the main body bracket and support the door bracket such that the door bracket is rotatable relative to the main body bracket, a first supporter configured to support one side of the hinge link to prevent the hinge link from rotating in a first direction relative to the main body bracket, and a second supporter configured to support another side of the hinge link to prevent the hinge link from rotating in a second direction opposite to the first direction relative to the main body bracket.

DESCRIPTION OF DRAWINGS

[0027] These and/or other aspects of the disclosure will become apparent and more readily appreciated from the following description of embodiments, taken in conjunction with the accompanying drawings listed below.

[0028] FIG. **1** is a front view of a cooking apparatus according to an embodiment of the present disclosure.

[0029] FIG. **2** is a perspective view of the cooking apparatus according to an embodiment of the present disclosure.

[0030] FIG. **3** is a view illustrating a hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0031] FIG. **4** is a view illustrating the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0032] FIG. **5** is an enlarged view of a portion of FIG. **4**.

[0033] FIG. **6** is a view illustrating that a locking member is moved in the hinge assembly of FIG. **5**.

[0034] FIG. **7** is a view illustrating the locking member included in the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0035] FIG. **8** is an enlarged view of some components of a hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0036] FIG. **9** is a view illustrating that a locking member is moved in the hinge assembly of FIG. **8**.

[0037] FIG. **10** is a view illustrating the locking member included in the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0038] FIG. **11** is a view illustrating that some components of a hinge assembly of a cooking apparatus according to an embodiment of the present disclosure are exploded.

[0039] FIG. **12** is a view illustrating a process of manufacturing the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0040] FIG. **13** is a view illustrating a process of manufacturing the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0041] FIG. **14** is an enlarged cross-sectional view illustrating that the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure is cut in a transverse direction and enlarged.

[0042] FIG. **15** is an enlarged cross-sectional view illustrating that the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure is cut in the transverse direction and enlarged.

[0043] FIG. **16** is an enlarged cross-sectional view illustrating that the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure is cut in the transverse direction and enlarged.

[0044] FIG. **17** is a view illustrating a hinge assembly when a door closes a cooking chamber in the cooking apparatus according to an embodiment of the present disclosure.

[0045] FIG. **18** is a view illustrating the hinge assembly when the door partially opens the cooking chamber in the cooking apparatus according to an embodiment of the present disclosure.

[0046] FIG. **19** is an enlarged view of some components of the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0047] FIG. **20** is an enlarged view of some components of the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0048] FIG. **21** is an enlarged view of some components of the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0049] FIG. **22** is an enlarged view of some components of the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0050] FIG. **23** is an enlarged view of some components of a hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0051] FIG. **24** is an enlarged view of some components of a hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

MODE OF THE DISCLOSURE

[0052] The embodiments described in the present specification and the configurations shown in the drawings are only examples of preferred embodiments of the present disclosure, and various modifications may be made at the time of filing of the present disclosure to replace the embodiments and drawings of the present specification.

[0053] Like reference numbers or signs in the various drawings of the application represent parts or components that perform substantially the same functions.

[0054] The terms used in the present specification are for the purpose of describing the embodiments and are not intended to restrict and/or to limit the present disclosure. For example, the singular expressions herein may include plural expressions, unless the context clearly dictates otherwise. Also, the terms "includes" and "has" are intended to indicate that there are features, numbers, steps, operations, components, parts, or combinations thereof described in the specification, and do not exclude the presence or addition of one or more other features, numbers, steps, operations, components, parts, or combinations thereof.

[0055] It will be understood that, although the terms "first," "second," and the like may be used herein to describe various components, these components should not be limited by these terms, these terms are only used to distinguish one component from another. For example, without departing from the scope of the present disclosure, a first component may be referred to as a second component, and similarly, the second component may also be referred to as a first component. The term "and/or" includes any combination of a plurality of related items or any one of a plurality of related items.

[0056] The terms "upward," "downward," "forward," "rearward," "left side," and "right side," etc., used in the following description are defined with reference to the drawings, and the shape and position of each component are not limited by these terms. For example, the terms "upward" and "downward" may each be defined with respect to a Z direction illustrated in the drawings. For example, the terms "forward" and "rearward" below may refer to forward and rearward in an X direction with respect to the drawings, respectively. The following terms "upward," "upper side," "downward," and "lower side" may refer to upward or upper side in the Z direction and downward or lower side in the Z direction with respect to the drawings, respectively. The terms "left side" and "right side" below may refer to left side in a Y direction and right side in the Y direction with respect to the drawings, respectively.

[0057] Hereinafter, embodiments of the present disclosure will be described in detail with reference to the accompanying drawings.

[0058] In addition, for convenience of explanation, the following description is made on the assumption that a cooking apparatus according to an embodiment of the present disclosure is an oven, but the present disclosure is not limited thereto and may be applied to various types of cooking apparatus such as microwave ovens.

[0059] FIG. **1** is a front view of a cooking apparatus according to an embodiment of the present disclosure. FIG. **2** is a perspective view of the cooking apparatus according to an embodiment of the present disclosure.

[0060] Referring to FIGS. **1** and **2**, a cooking apparatus **1** according to an embodiment of the present disclosure may include a cooking chamber **20**, a main body **10** forming the cooking chamber **20**, and a door **30** configured to open and close the cooking chamber **20**.

[0061] The main body **10** may include an inner case **11** in which the cooking chamber **20** is formed. The inner case **11** may be provided inside outer cases **12**, **13**, **14***a*, **14***b*, **15**, and **16** of the main body **10**, which will be described later.

[0062] The cooking chamber **20** may be formed with an open front to allow food to be put in and taken out. The inner case **11** may include an opening **11***a* to allow food to enter and exit the cooking chamber **20** therethrough. One side of the main body **10** on which the opening **11***a* is formed may be defined as a front side of the main body **10**.

[0063] As an example, the inner case **11** may have a box shape with a substantially open front.

[0064] An inner wall of the inner case **11** may be coated to prevent the inner wall of the inner case **11** from being corroded due to condensation that may occur in a condensation process of water vapor or moisture contained in food itself, etc. The inner wall of the inner case **11** may be dried by heat generated in a food cooking process.

[0065] Inside the cooking chamber **20**, a plate **25** capable of receiving food and a rack **26** supporting the plate **25** may be provided. The plate **25** and the rack **26** may be configured to be inserted into or withdrawn from the cooking chamber **20** through the opening **11***a* of the inner case **11**. As an example, the rack **26** may be configured to be inserted into the cooking chamber **20** or withdrawn from the cooking chamber **20** by sliding relative to the inner case **11**.

[0066] In addition, inside the cooking chamber **20**, a heater (not shown) to supply heat for cooking food, a cooking chamber fan (not shown) to allow air heated by the heater to flow smoothly inside the cooking chamber **20**, etc., may be provided. However, the present disclosure is not limited thereto, and various configurations may be provided inside the cooking chamber **20** depending on a purpose and function of the cooking apparatus **1**.

[0067] The cooking apparatus **1** may include an electrical room provided separately from the cooking chamber **20**. The electrical room may be provided inside the main body **10**. The inner case **11** may partition the cooking chamber **20** and the electrical room (not shown).

[0068] The electrical room may be formed to surround the inner case **11**. The electrical room may insulate a space between the cooking chamber **20** and the outer case of the main body **10** to prevent heat inside the cooking chamber **20** from being emitted directly to the outside of the main body **10**. Air may flow for insulation in the electrical room. In the electrical room, a separate insulator (not shown) may be provided to surround the inner case **11** for insulation. The insulator may be composed of materials such as fiberglass and asbestos.

[0069] In the electrical room, various electrical components such as a printed circuit board (not shown) to control an operation of the cooking apparatus **1** may be disposed.

Depending on an embodiment, a steam generator (not shown) to generate steam may be provided in the electrical room. Depending on an embodiment, an automatic opening and closing device (not shown) to automatically open and close the door **30** may be provided in the electrical room.

[0070] A cooling fan module (not shown) may be provided inside the electrical room to cool heat generated from various electrical components.

[0071] The main body **10** may include the outer cases **12**, **13**, **14***a*, **14***b*, **15**, and **16** configured to form at least portion of an appearance of the cooking apparatus **1**. The cooking chamber **20** and the electrical room may be disposed inside the outer cases of the main body **10**.

[0072] The outer case of the main body **10** may include an upper panel **13** forming an upper surface of the cooking apparatus **1**. The upper panel **13** may cover an upper part of the electrical room.

[0073] The outer cases of the main body **10** may include side panels **14** forming left and right surfaces of the cooking apparatus **1**. As an example, the side panels **14** may be provided with heat dissipation holes **14***h* formed to dissipate heat inside the electrical room.

[0074] The outer case of the main body **10** may include a rear panel **15** forming a rear surface of the cooking apparatus **1**. As an example, the rear panel **15** may be provided with a heat dissipation hole (not shown) formed to dissipate heat inside the electrical room.

[0075] The outer case of the main body **10** may include a base **16** forming a bottom surface of the cooking apparatus **1**.

[0076] The upper panel **13**, the side panels **14**, the rear panel **15**, and the base **16** may each be formed to have a substantially flat plate shape, but the shape thereof is not limited thereto.

[0077] The main body **10** may include a front frame **12** forming at least a portion of a front surface of the main body **10**. The front frame **12** may be provided on a front side of the main body **10**. The front frame **12** may be covered by the door **30** when the door **30** is closed.

[0078] The front frame **12** may be formed in the shape of a frame having an opening. The front frame **12** may be formed along a circumference of the opening **11***a* of the inner case **11**.

[0079] As an example, the inner case **11** may be coupled to the front frame **12**, and a portion of the inner case **11** adjacent to the opening **11***a* may be coupled to the front frame **12**.

[0080] The front frame **12** may be coupled to the upper panel **13**. The front frame **12** may be coupled to each of the left and right side panels of the side panels **14**. The front frame **12** may be coupled to the base **16**. The front frame **12** may be coupled to a control panel bracket **42**, which will be described later.

[0081] The front frame **12**, the upper panel **13**, the side panels **14**, the rear panel **15** and the base **16** may be detachably coupled to each other. However, the present disclosure is not limited thereto, and each of the front frame **12**, the upper panel **13**, the side panels **14**, and the base **16** may have only a portion thereof that is detachable, while the other portions may be formed integrally with each other.

[0082] The cooking apparatus **1** may include a control panel **41**. The control panel **41** may include a display capable of displaying a variety of operation information of the cooking apparatus **1** and an inputter capable of allowing a user to input operation commands. The inputter may be provided as a touch panel. The inputter may include buttons or knobs.

[0083] As an example, the control panel **41** may be provided on an upper portion of a front surface of the cooking apparatus **1**.

[0084] The cooking apparatus **1** may include the control panel bracket **42** on which the control panel **41** is mounted. The control panel bracket **42** may be coupled to the main body **10**. In detail, the control panel bracket **42** may be coupled to the front of the main body **10**. The control panel bracket **42** may be coupled to an upper portion of the front frame **12**.

[0085] The control panel **41** may be mounted on the control panel bracket **42**. The control panel **41** may be mounted on a front surface of the control panel bracket **42**. The control panel bracket **42** may include an opening (not shown) to allow at least a portion of a rear surface of the control panel **41** to be cooled by the cooling fan module provided in the electrical room.

[0086] The cooking apparatus **1** may include the door **30** configured to open and close the cooking chamber **20**. The door **30** may be rotatably coupled to the main body **10** to open and close the cooking chamber **20**. As an example, the door **30** may be rotatably coupled to a lower portion of the main body **10** and may be rotatable about a rotation shaft provided at a lower portion of the cooking apparatus **1**.

[0087] The door **30** may include a transparent portion **32** formed transparently to allow the user to see into the inside of the cooking chamber **20** even when the door **30** closes the cooking chamber **20**. The transparent portion **32** may include various transparent materials such as glass materials.

[0088] The door **30** may include a handle **33** to enable the user to manually open and close the door **30**. To enable the user to easily open and close the door **30**, the handle **33** may be provided adjacent to a portion of the door **30** opposite to the rotation shaft of the door **30**. FIG. **1** illustrates an example in which the handle **33** is provided on a front surface of the door **30**, but is not limited thereto. Herein, 'the front surface of the door **30**' refers to a surface of the door **30** facing forward in an X direction based on a state in which the door **30** closes the cooking chamber **20**.

[0089] The cooking apparatus **1** may include a hinge assembly **100** configured to connect the door **30** and the main body **10**. The hinge assembly **100** may be coupled to each of the door **30** and the main body **10**. The hinge assembly **100** may support the door **30** so that the door **30** may rotate relative to the main body **10**.

[0090] The hinge assembly **100** may include a plurality of hinge assemblies **100***a* and **100***b*. As an example, as illustrated in FIG. **2**, the plurality of hinge assemblies **100***a* and **100***b* may be coupled to left and right lower portions of the main body **10**, respectively, and may be coupled to left and right lower portions of the door **30**, respectively. That is, the left hinge assembly **100***a* may connect the left lower portion of the door **30** to the left lower portion of the main body **10**, and the right hinge assembly **100***b* may connect the right lower portion of the door **30** to the right lower portion of the main body **10**. Herein, the 'lower portion' of the door **30** refers to a portion positioned at a lower portion of the door **30** in a Z direction when the cooking chamber **20** is closed.

[0091] As an example, as illustrated in FIG. **2**, the rotation shaft of the door **30** may be provided at the lower portion of

the cooking apparatus **1** and may extend in a left-right direction of the cooking apparatus **1** which is a Y direction.

[0092] The configurations of the cooking apparatus **1** described above with reference to FIGS. **1** and **2** are merely examples of the cooking apparatus according to the present disclosure, and the present disclosure is not limited thereto.

[0093] Hereinafter, hinge assemblies of the cooking apparatus **1** according to embodiments of the present disclosure will be described in detail with reference to FIGS. **3** to **24**. FIGS. **3** to **24** illustrate the hinge assemblies of the cooking apparatus **1** according to the embodiments of the present disclosure based on the right hinge assembly **100***b* for convenience, but the following description may also be applied to the left hinge assembly **100***a*.

[0094] FIG. **3** is a view illustrating a hinge assembly of the cooking apparatus according to an embodiment of the present disclosure. FIG. **4** is a view illustrating the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0095] Referring to FIGS. **3** and **4**, the hinge assembly **100** of the cooking apparatus **1** according to an embodiment of the present disclosure may connect the door **30** and the main body **10**. The hinge assembly **100** may rotatably support the door **30** relative to the main body **10**.

[0096] In detail, the hinge assembly **100** may include a main body bracket **110** configured to be coupled to the main body **10**. The main body bracket **110** may be fixed to the main body **10** and may be maintained in a fixed position relative to the main body **10** regardless of whether the door **30** opens or closes the cooking chamber **20**.

[0097] As an example, the main body bracket **110** may be fixed by being screw-fastened to some of the outer cases of the main body **10** (e.g., the base **16** or the side panel **14**, etc.).

[0098] As an example, the main body bracket **110** may be fixed by being screw-fastened to the front frame **12** of the main body **10**.

[0099] However, the present disclosure is not limited thereto, and the main body bracket **110** may be fixed to the main body **10** in various methods.

[0100] The main body **10** may include a main body hinge mounting portion **17** on which the main body bracket **110** is mounted. The main body bracket **110** is mounted on the main body hinge mounting portion **17** to be maintained in the fixed position relative to the main body **10**.

[0101] The main body hinge mounting portion **17** may be provided on each of left and right portions of the main body **10**.

[0102] The main body hinge mounting portion **17** may be formed between the inner case **11** and the outer case of the main body **10**. As an example, the main body hinge mounting portion **17** may be formed between the inner case **11**, the side panels **14**, and the front frame **12**.

[0103] The main body bracket **110** may support a hinge link **130**, which will be described later. At least a portion of the hinge link **130** may be accommodated in the main body bracket **110**.

[0104] The main body bracket **110** may include a cover portion **111** to cover at least a portion of the hinge link **130** accommodated in the main body bracket **110**. An accommodation space **116** (see FIG. **11**) of the main body bracket **110**, in which at least a portion of the hinge link **130** is accommodated, may be formed on an inner side of the cover portion **111**.

[0105] The cover portion **111** may be coupled to the main body **10**. As an example, the cover portion **111** may be screw-fastened to the main body **10** so that the main body bracket **110** may be fixed to the main body **10**.

[0106] As an example, the cover portion **111** may include a pair of side plates disposed opposite each other, and a front plate connecting the pair of side plates. The pair of side plates of the cover portion **111** may be arranged to face each other in the Y direction. The front plate of the cover portion **111** may extend in the Y direction to connect the pair of side plates. The front plate of the cover portion **111** may connect a front portion of each of the pair of side plates in the X direction. The front plate of the cover portion **111** may be provided at one end of the main body bracket **110** facing a door bracket **120** when the door **30** closes the cooking chamber **20**, that is, at one end of the cover portion **111** on the door bracket **120** side.

[0107] As an example, the pair of side plates of the cover portion **111** and the front plate connecting the side plates may be formed integrally.

[0108] The main body bracket **110** may include a coupling hole **112** formed to allow the hinge link **130** to penetrate in order for the hinge link **130** to be coupled to the main body bracket **110**. The coupling hole **112** may be provided at one end of the cover portion **111** on the door bracket **120** side. That is, the coupling hole **112** may be provided on the front plate connecting the pair of side plates of the cover portion **111**.

[0109] As an example, the main body bracket **110** may be composed of a metal material. However, the material of the main body bracket **110** is not limited thereto.

[0110] The main body bracket **110** described above is only an example of one configuration in which the hinge assembly of the cooking apparatus according to the present disclosure is coupled to the main body, and the present disclosure is not limited thereto.

[0111] Unlike what is illustrated, the main body bracket **110** may be formed integrally with a portion of the main body **10**. That is, the hinge link **130**, which will be described later, may be directly coupled to the main body **10**, and a locking member **140**, which will be described later, may be directly engaged with and coupled to the main body **10**.

[0112] The hinge assembly **100** may include the door bracket **120** configured to be coupled to the door **30**. The door bracket **120** may be configured to be fixed to the door **30** and to rotate together with the door **30** when the door **30** opens and closes the cooking chamber **20**.

[0113] As an example, the door bracket **120** may be fixed by being screw-fastened to the door **30**.

[0114] However, the present disclosure is not limited thereto, and the door bracket **120** may be fixed to the door **30** by various methods.

[0115] The door **30** may include a door hinge mounting portion **31** formed to allow the door bracket **120** to be mounted. The door bracket **120** may be mounted on the door hinge mounting portion **31** to be maintained in a fixed position relative to the door **30**.

[0116] The door hinge mounting portion **31** may be provided on each of left and right portions of the door **30**.

[0117] When the door **30** is in a position of closing the cooking chamber **20**, the door hinge mounting portion **31** and the main body hinge mounting portion **17** may be arranged parallel to each other forward and backward in the X direction.

[0118] The door bracket **120** may be supported by the hinge link **130**, which will be described later. The door bracket **120** may be rotatably supported by the hinge link **130**. At least a portion of the hinge link **130** may be accommodated in the door bracket **120**.

[0119] In detail, the door bracket **120** may be configured to be rotatable about a door rotation shaft **181**. The door rotation shaft **181** may function as the rotation shaft of the door **30**. The door bracket **120** and the hinge link **130** may be coupled by the door rotation shaft **181**.

[0120] The door rotation shaft **181** may penetrate the door bracket **120** and the hinge link **130**.

[0121] As an example, the door rotation shaft **181** may couple a lower portion of the door bracket **120** and a lower portion of the hinge link **130**. The door rotation shaft **181** may extend in the Y direction.

[0122] As an example, the door bracket **120** may be composed of a metal material. However, the material of the door bracket **120** is not limited thereto.

[0123] The door bracket **120** described above is only an example of one configuration in which the hinge assembly of the cooking apparatus according to the present disclosure is coupled to the door, and the present disclosure is not limited thereto.

[0124] Unlike what is illustrated, the door bracket **120** may be formed integrally with a portion of the door **30**. That is, the hinge link **130**, which will be described later, may be directly coupled to the door **30**.

[0125] The hinge link **130** may connect the main body bracket **110** and the door bracket **120**. The hinge link **130** may be coupled to each of the main body bracket **110** and the door bracket **120**. The hinge link **130** may rotatably support the door bracket **120**.

[0126] The hinge link **130** may be coupled to the main body bracket **110**. The main body bracket **110** may be maintained in a fixed position relative to the hinge link **130** regardless of the opening or closing of the door **30**.

[0127] In detail, the hinge link **130** may include a main body coupling portion **131** coupled to the main body bracket **110**. The hinge link **130** may be coupled to the main body bracket **110** by the main body coupling portion **131** and may be fixed to the main body bracket **110**.

[0128] At least a portion of the main body coupling portion **131** may be accommodated in the main body bracket **110**. At least a portion of the main body coupling portion **131** may be covered by the cover portion **111**. The main body coupling portion **131** may be inserted into the main body bracket **110**.

[0129] A specific structure for fixing the hinge link **130** to the main body bracket **110** will be described later (see FIGS. **17** to **24**, etc.).

[0130] The hinge link **130** may be coupled to the door bracket **120**. The door bracket **120** may be rotatably coupled to the hinge link **130**.

[0131] As described above, the hinge link **130** may be coupled to the door bracket **120** by the door rotation shaft **181**. The door bracket **120** may rotate relative to the hinge link **130** with the door rotation shaft **181** as a rotation axis.

[0132] In detail, the hinge link **130** may include a door coupling portion **132** coupled to the door bracket **120**. The hinge link **130** may be coupled to the door bracket **120** by the door coupling portion **132**. The door bracket **120** may be configured to be rotatable relative to the door coupling portion **132**.

[0133] The door rotation shaft **181** may penetrate the door coupling portion **132** and the door bracket **120**.

[0134] At least a portion of the door coupling portion **132** may be accommodated in the door bracket **120**. At least a portion of the door coupling portion **132** may be covered by the door bracket **120**.

[0135] The hinge link **130** may include an intermediate portion **133** provided between the main body coupling portion **131** and the door coupling portion **132**.

[0136] The intermediate portion **133** may be located outside the main body bracket **110**. The intermediate portion **133** may be located outside the door bracket **120** when the door **30** is in the position of closing the cooking chamber **20**. That is, the intermediate portion **133** may be located between the main body bracket **110** and the door bracket **120** when the door **30** is in the position of closing the cooking chamber **20**.

[0137] As an example, the main body coupling portion **131**, the door coupling portion **132**, and the intermediate portion **133** of the hinge link **130** may all be formed integrally.

[0138] The main body bracket **110** may include a link support portion **115** (see FIG. **5**) provided at one end of the main body bracket **110** on the door bracket **120** side to support the hinge link **130**.

[0139] The link support portion **115** may support a portion of the hinge link **130** corresponding to a portion between the main body coupling portion **131** and the intermediate portion **133**.

[0140] The link support portion **115** may be provided at a front end of the main body bracket **110** in the X direction. The link support portion **115** may be provided on the front plate connecting the pair of side plates of the cover portion **111**.

[0141] The link support portion **115** may be provided adjacent to the coupling hole **112**. As an example, the link support portion **115** may be provided below the coupling hole **112**.

[0142] The link support portion **115** may support a lower side of the hinge link **130**.

[0143] The hinge link **130** may include a support groove **134** (see FIG. **5**) formed to correspond to the link support portion **115**.

[0144] The support groove **134** may be formed to be engaged with and coupled to the link support portion **115**. As an example, the support groove **134** may be formed on the lower side of the hinge link **130** and may have a shape of being concavely recessed upward from the lower side of the hinge link **130**.

[0145] The link support portion **115** may be inserted into the support groove **134** in a vertical direction which is the Z direction to be engaged with the support groove **134**.

[0146] As the link support portion **115** and the support groove **134** are engaged with each other, the hinge link **130** may be supported by the main body bracket **110**, and may be restricted from moving in the X direction or Z direction.

[0147] As an example, the hinge link **130** may be composed of a metal material. However, the material of the hinge link **130** is not limited thereto.

[0148] The hinge link **130** described above is only an example of one configuration in which the hinge assembly of the cooking apparatus according to the present disclosure connects the main body bracket and the door bracket, and the present disclosure is not limited thereto.

[0149] The hinge assembly **100** may also include an elastic system configured to enable an efficient rotational movement of the door **30** when the door **30** opens or closes the cooking chamber **20**.

[0150] As an example, the elastic system of the hinge assembly **100** may include a first elastic member **150**.

[0151] The first elastic member **150** may be configured to accumulate an elastic force when the door **30** opens the cooking chamber **20** and provide the elastic force when the door **30** closes the cooking chamber **20** to prevent the door **30** from being easily closed due to an own weight of the door **30**.

[0152] In detail, the first elastic member **150** may include a first elastic spring **151** configured to accumulate or provide an elastic force, and a first spring rod **152** configured to be supported on the door bracket **120**. The first elastic spring **151** may be disposed to surround an outer circumferential surface of the first spring rod **152**.

[0153] The first elastic member **150** may be supported by the door bracket **120**. The first elastic member **150** may be accommodated on an inner side of the door bracket **120**.

[0154] As an example, the elastic system of the hinge assembly **100** may also include a second elastic member **160**.

[0155] The second elastic member **160** may be configured to provide an elastic force in a direction in which the door **30** is opened in an initial stage of a motion in which the door **30** opens the cooking chamber **20** from a closed position so that the door **30** may be easily opened. The second elastic member **160** may also function as a damper preventing the door **30** from being closed too quickly in a motion of closing the cooking chamber **20**.

[0156] In detail, the second elastic member **160** may include a second elastic spring **161** configured to accumulate or provide an elastic force, a second spring rod **162** configured to be supported on the door bracket **120**, and a roller **163** in contact with the hinge link **130**.

[0157] The second elastic spring **161** may be disposed to surround an outer circumferential surface of the second spring rod **162**.

[0158] The roller **163** may be coupled to the second spring rod **162**. The roller **163** may be configured to be in contact with an outer surface of the hinge link **130** and be movable on the outer surface of the hinge link **130** according to the rotational movement of the door **30**. That is, a structure of being in contact with the roller **163** and the hinge link **130** may be configured as a cam structure. A degree of the elastic force accumulated in the second elastic spring **161** may vary depending on a movement of the roller **163**.

[0159] As an example, the roller **163** may be in contact with an upper side of the hinge link **130**.

[0160] The second elastic member **160** may be supported by the door bracket **120**. The second elastic member **160** may be accommodated on the inner side of the door bracket **120**.

[0161] However, unlike what is described above, the hinge assembly **100** may not include an elastic system such as the first elastic member **150** and the second elastic member **160**, and may include an elastic system of a modified structure to perform a function similar to the above.

[0162] With the above configuration, the hinge assembly **100** may connect the door **30** and the main body **10** and rotatably support the door **30**.

[0163] Components of the hinge assembly **100** may become separated from each other or may deviate from designed positions of the components due to vibration occurring in a process of transporting a completed product, vibration occurring in a process of opening and closing a door of the product, or vibration caused by other external impacts.

[0164] Therefore, the hinge assembly **100** of the cooking apparatus **1** according to an embodiment of the present disclosure may need a structure capable of stably coupling the door bracket **120** and the hinge link **130** to the main body bracket **110**, stably supporting the door **30**, and stably assembling the door **30** to the main body **10**.

[0165] The hinge assembly **100** may include the locking member **140** configured to fix the door bracket **120** in a position when the door **30** closes the cooking chamber **20**. The locking member **140** may be configured to prevent the door bracket **120** and the hinge link **130** from being separated from the main body bracket **110**.

[0166] Hereinafter, a structure and function of the locking member **140** will be described in detail.

[0167] FIG. **5** is an enlarged view of a portion of FIG. **4**. FIG. **6** is a view illustrating that a locking member is moved in the hinge assembly of FIG. **5**. FIG. **7** is a view illustrating the locking member included in the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0168] Referring to FIGS. **5** to **7**, the locking member **140** may be coupled to the hinge link **130**. The locking member **140** may be maintained in a fixed position relative to the hinge link **130** regardless of the rotational movement of the door **30**. Additionally, as the hinge link **130** is fixed to the main body bracket **110**, the locking member **140** may be maintained in a fixed position relative to the main body bracket **110** regardless of the rotational movement of the door **30**.

[0169] The locking member **140** may be coupled to the hinge link **130** by a coupling shaft **182**. The coupling shaft **182** may penetrate the locking member **140** and the hinge link **130**. For example, the coupling shaft **182** may extend in the Y direction and penetrate the locking member **140** and the hinge link **130** in the Y direction.

[0170] The locking member **140** may include a locking body **141**. The locking body **141** may be coupled to the hinge link **130**.

[0171] The locking body **141** may cover at least a portion of the hinge link **130**. For example, the locking body **141** may cover at least a portion of the hinge link **130** on the left and right sides in the Y direction.

[0172] As an example, as illustrated, a portion of the locking body **141** may be covered by the door bracket **120** when the door **30** is in the position of closing the cooking chamber **20**. In this case, a portion of the locking body **141** may cover the door coupling portion **132** of the hinge link **130**.

[0173] The coupling shaft **182** may be provided on the locking body **141**. The coupling shaft **182** may penetrate the locking body **141** and the hinge link **130** to couple the locking member **140** and the hinge link **130**.

[0174] As an example, the coupling shaft **182** may be covered by the door bracket **120** when the door **30** is in the position of closing the cooking chamber **20**. The coupling shaft **182** may penetrate the door coupling portion **132** of the hinge link **130**.

[0175] The locking member **140** may be configured to be rotatable relative to the hinge link **130** about the coupling shaft **182**.

[0176] Although the locking member **140** may be maintained in the fixed position relative to the hinge link **130** regardless of the rotational movement of the door **30**, the locking member **140** may be configured to be rotatable relative to the hinge link **130** about the coupling shaft **182**.

[0177] For example, in a process of manufacturing the hinge assembly **100** or mounting the hinge assembly **100** to the main body **10** and the door **30**, a structure in which the locking member **140** is rotatable relative to the hinge link **130** may be required for convenience of manufacturing.

[0178] In a state in which the process of manufacturing the hinge assembly **100** or the process of mounting the hinge assembly **100** to the main body **10** and the door **30** is completed, the locking member **140** may be supported by the main body bracket **110** as illustrated in FIG. **5**.

[0179] Taking a locking member **1140** of a hinge assembly **1100** according to the embodiment illustrated in FIGS. **17** to **19** as an example, the locking member **1140** may be efficiently supported in the X direction by a main body bracket **1110** of the hinge assembly **1100**, but may not be efficiently supported in the Z direction or in a direction in which the locking member **1140** rotates relative to a hinge link **1130**.

[0180] As described above, because the locking member **140** is not completely fixed to the hinge link **130**, when the locking member **140** moves relative to the hinge link **130** due to vibration occurring in the process of transporting the completed product, vibration occurring in the process of opening and closing the door of the product, or vibration caused by other external impacts, the locking member **140** may deviate from a position of being supported on the main body bracket **110**.

[0181] In particular, a problem may occur when there is a difference between a height of the coupling shaft **182** in the Z direction by which the locking member **140** and the hinge link **130** are coupled and a height of a point in the Z direction at which the locking member **140** is supported on the main body bracket **110**.

[0182] In the embodiment illustrated in FIGS. **5** to **7**, the locking member **140** may be engaged with and coupled to the main body bracket **110**. In this case, the locking member **140** may be supported not only in the X direction but also in the Z direction relative to the main body bracket **110**, and in a rotational direction of the locking member **140** relative to the hinge link **130**. Accordingly, the locking member **140** may be more stably supported on the main body bracket **110** and may more stably fix the door bracket **120** in the position when the door **30** closes the cooking chamber **20**.

[0183] The locking member **140** may be lock-coupled to the main body bracket **110** to be maintained in the fixed position relative to the main body bracket **110**. That is, the locking member **140** may be maintained in a certain position regardless of the rotational movement of the door **30**.

[0184] In detail, the locking member **140** may include an engaging portion **142** to be engaged with and coupled to the main body bracket **110**. As the engaging portion **142** is engaged with and coupled to the main body bracket **110**, the door bracket **120** and the hinge link **130** may be prevented from being separated from the main body bracket **110**, and the door bracket **120** may be fixed in the position when the door **30** closes the cooking chamber **20**.

[0185] The main body bracket **110** may include an insertion portion **114** into which at least a portion of the engaging portion **142** is inserted. The engaging portion **142** may be engaged with and coupled to the main body bracket **110**.

[0186] The engaging portion **142** may protrude from the locking body **141** toward an inner side of the insertion portion **114** so that at least a portion of the engaging portion **142** may be engaged with and coupled to the insertion portion **114** by insertion.

[0187] As the engaging portion **142** is inserted into the insertion portion **114**, the locking member **140** may be firmly fixed to the main body bracket **110**, and the door bracket **120** may be efficiently fixed in the position relative to the main body bracket **110**.

[0188] The insertion portion **114** may be provided at one end of the main body bracket **110** adjacent to the door bracket **120**. The insert portion **114** may be formed to have a shape of being recessed concavely in a direction opposite to the door bracket **120** (rearward in the X direction based on the drawings) from one end of the cover portion **111** adjacent to the door bracket **120**.

[0189] The insertion portion **114** may be formed to communicate with the accommodation space **116** (see FIG. **11**) inside the main body bracket **110**. That is, the inside of the main body bracket **110** may be formed as an integrated space in which the insertion portion **114** and the accommodation space **116** are not partitioned from each other. However, the present disclosure is not limited thereto, and an internal space of the main body bracket **110** may be formed such that the insertion portion **114** and the accommodation space **116** are partitioned from each other.

[0190] As described above, because the locking member **140** is not completely fixed to the hinge link **130**, there is a possibility that the engaging portion **142** of the locking member **140** may deviate from the main body bracket **110** (for example, in a case where the locking member **140** rotates in the direction illustrated in FIG. **6**) due to vibration occurring in the process of transporting the completed product, vibration occurring in the process of opening and closing the door of the product, or vibration caused by other external impacts.

[0191] In order to prevent this possibility, the locking member **140** may include a deviation prevention portion **143**. The deviation prevention portion **143** may be provided to prevent the engaging portion **142** from deviating from the main body bracket **110**.

[0192] Specifically, the deviation prevention portion **143** may be provided to interfere with the door bracket **120** to prevent the engaging portion **142** from deviating from the main body bracket **110**.

[0193] When the door **30** is in the position of closing the cooking chamber **20**, the deviation prevention portion **143** may be disposed between the door bracket **120** and the engaging portion **142**.

[0194] When the door **30** closes the cooking chamber **20**, a distance d**1** between the door bracket **120** and the main body bracket **110** may be set to be shorter than a distance d**2** between one end of the engaging portion **142** in a direction of being inserted into the insertion portion **114** and one end of the deviation prevention portion **143** interfering with the door bracket **120**. Herein, the distance d**1** between the door bracket **120** and the main body bracket **110** refers to a distance measured in the X direction between a portion of the door bracket **120** that may interfere with the deviation

prevention portion **143** and a portion of the cover portion **111** adjacent to the insertion portion **114**. Also, the distance d**2** between one end of the engaging portion **142** in the direction of being inserted into the insertion portion **114** and one end of the deviation prevention portion **143** interfering with the door bracket **120** refers to a distance measured in the X direction between one end of the engaging portion **142** in the direction of being inserted into the insertion portion **114** and one end of the deviation prevention portion **143** interfering with the door bracket **120**.

[0195] The locking member **140** may be configured to be positioned between a first position (see FIG. **5**) in which the engaging portion **142** is maximally inserted into the insertion portion **114** and a second position (see FIG. **6**) in which the engaging portion **142** moves in a direction of deviating from the insertion portion **114** at the first position. The first and second positions of the locking member **140** may be defined as relative positions of the main body bracket **110** and the hinge link **130**.

[0196] As an example, the locking member **140** may be configured to be rotatable between the first position and the second position centered on the coupling shaft **182**. When the locking member **140** moves between the first position and the second position, the engaging portion **142** may move substantially along an arc centered on the coupling shaft **182**.

[0197] The deviation prevention portion **143** may be provided to come into contact with the door bracket **120** when the door **30** closes the cooking chamber **20** and the locking member **140** is in the second position. That is, the deviation prevention portion **143** may be provided to interfere with the door bracket **120** when the locking member **140** reaches the second position.

[0198] Conversely, the deviation prevention portion **143** may be disposed to be spaced apart from the door bracket **120** when the locking member **140** is in the first position. A reason of this arrangement is because in a case in which the deviation prevention portion **143** always interferes with the door bracket **120** when the door **30** is closed, a collision may occur between the door bracket **120** and the deviation prevention portion **143** whenever the door **30** rotates from a position of opening the cooking chamber **20** to the position of closing the cooking chamber **20**, which may cause noise and vibration and damage to components.

[0199] With this configuration, even if the engaging portion **142** moves in the direction of deviating from the insertion portion **114**, the deviation prevention portion **143** may interfere with the door bracket **120** before the engaging portion **142** completely deviates from the insertion portion **114**.

[0200] The deviation prevention portion **143** may be formed to protrude from the locking body **141** so that the locking member **140** may interfere with the door bracket **120** even when rotating only a small angle about the coupling shaft **182**. As an example, the deviation prevention portion **143** may protrude from the locking body **141** in a direction opposite to the main body bracket **110**.

[0201] A distance from the coupling shaft **182** to the deviation prevention portion **143** may be set to be shorter than a distance from the coupling shaft **182** to the engaging portion **142**. In this case, even if a length at which the deviation prevention portion **143** protrudes from the locking body **141** is not designed to be excessively long, the deviation prevention portion **143** may interfere with the door bracket **120** by moving only a short distance. Also, even if a length at which the engaging portion **142** protrudes from the locking body **141** is not designed to be excessively long, the engaging portion **142** may be efficiently prevented from deviating from the insertion portion **114**.

[0202] The deviation prevention portion **143** may extend in a direction away from the door bracket **120** from a tip **143***e* coming into contact with the door bracket **120** at the second position when the door **30** closes the cooking chamber **20**. When the tip **143***e* of the deviation prevention portion **143** comes into contact with the door bracket **120**, the tip **143***e* and the door bracket **120** may come into contact to approximate a line contact.

[0203] With this configuration, not only unnecessary interference between the deviation prevention portion **143** and the door bracket **120** may be prevented, but also a load applied to the deviation prevention portion **143** may be distributed.

[0204] In this case, as a length at which the tip **143***e* of the deviation prevention portion **143** protrudes from the locking body **141** toward the door bracket **120** increases, a distance between the first and second positions of the locking member **140** may become shorter.

[0205] The tip **143***e* of the deviation prevention portion **143** may be provided on a side adjacent to the coupling shaft **182** of the deviation prevention portion **143**. In this case, even if the locking member **140** rotates only by a small angle about the coupling shaft **182**, the engaging portion **142** may be prevented from deviating from the insertion portion **114**.

[0206] The locking member **140** may include an extension portion **141***a* extending from the deviation preventing portion **143** to the engaging portion **142**. The extension portion **141***a* may be a portion of the locking body **141**.

[0207] As illustrated in FIG. **7**, the deviation prevention portion **143** of the locking member **140** may include a plurality of deviation prevention portions **143***a* and **143***b* disposed to be spaced apart from each other.

[0208] When the locking member **140** is in the second position and the door **30** is in the position of closing the cooking chamber **20**, the plurality of deviation prevention portions **143***a* and **143***b* may each interfere with the door bracket **120**.

[0209] As an example, the plurality of deviation prevention portions **143***a* and **143***b* may be disposed to be spaced apart from each other in the Y direction.

[0210] As an example, the plurality of deviation prevention portions **143***a* and **143***b* may be formed to have shapes or sizes corresponding to each other.

[0211] The locking member **140** may include a plurality of extension portions **141***aa* and **141***ab* extending from the plurality of deviation prevention portions **143***a* and **143***b* to the engaging portion **142**, respectively.

[0212] Each of the plurality of extension portions **141***aa* and **141***ab* may be a portion of the locking body **141**.

[0213] The plurality of extension portions **141***aa* and **141***ab* may be disposed to be spaced apart from each other. As an example, the plurality of extension portions **141***aa* and **141***ab* may be disposed to be spaced apart from each other in the Y direction.

[0214] As an example, the plurality of extension portions **141***aa* and **141***ab* may be formed to have shapes or sizes corresponding to each other.

[0215] The engaging portion **142** may connect the plurality of extension portions **141***aa* and **141***ab* to each other. As

an example, the plurality of extension portions **141***aa* and **141***ab* may be connected to opposite ends of the engaging portion **142** in the Y direction, respectively.

[0216] As illustrated in FIG. **7**, the engaging portion **142**, the deviation prevention portion **143**, and the extension portion **141***a* of the locking member **140** may be formed integrally. For example, the locking member **140** may be formed such that the opposite ends to which the plurality of extension portions **141***aa* and **141***ab* of the engaging portion **142** are respectively connected are bent.

[0217] Furthermore, the locking member **140** may be formed as an entire body.

[0218] As an example, the locking member **140** may be composed of a metal material. However, the material of locking member **140** is not limited thereto.

[0219] FIG. **8** is an enlarged view of some components of a hinge assembly of the cooking apparatus according to an embodiment of the present disclosure. FIG. **9** is a view illustrating that a locking member is moved in the hinge assembly of FIG. **8**. FIG. **10** is a view illustrating the locking member included in the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0220] Components of the embodiment illustrated in FIGS. **8** to **10** that are the same as those of the embodiment illustrated in FIGS. **1** to **7** may be given the same reference numerals, and descriptions thereof may be omitted.

[0221] Referring to FIGS. **8** to **10**, the cooking apparatus **1** according to an embodiment of the present disclosure may include a hinge assembly **100-1** configured to connect the door **30** and the main body **10**. The hinge assembly **100-1** may support the door **30** such that the door **30** is rotatable relative to the main body **10**.

[0222] The hinge assembly **100-1** may include the main body bracket **110** configured to be coupled to the main body **10**, the door bracket **120** configured to be coupled to the door **30**, and the hinge link **130** configured to connect the main body bracket **110** and the door bracket **120**.

[0223] The main body bracket **110**, the door bracket **120**, and the hinge link **130** included in the hinge assembly **100-1** may have the same configuration as the main body bracket **110**, the door bracket **120**, and the hinge link **130** included in the hinge assembly **100** in the embodiment described with reference to FIGS. **1** to **7**, and detailed descriptions thereof will be omitted.

[0224] The hinge assembly **100-1** may include the locking member **140** configured to fix the door bracket **120** in the position when the door **30** closes the cooking chamber **20**. The locking member **140-1** may have a configuration corresponding to that of the locking member **140** included in the hinge assembly **100** in the embodiment described with reference to FIGS. **1** to **7**, and may provide a function corresponding thereto.

[0225] For example, the locking member **140-1** may be coupled to the hinge link **130**. The locking member **140-1** may include a locking body **141-1** coupled to the hinge link **130**, and the locking body **141-1** may be coupled to the hinge link **130** by the coupling shaft **182**. The locking member **140-1** may be configured to be rotatable about the coupling shaft **182**.

[0226] For example, the locking member **140-1** may include an engaging portion **142-1** engaged with and coupled to the main body bracket **110**. The engaging portion **142-1** may be inserted into the insertion portion **114** of the main body bracket **110**. The engaging portion **142-1** may protrude from the locking body **141-1**.

[0227] For example, the locking member **140-1** may include a deviation prevention portion **143-1** provided to prevent the engaging portion **142-1** from deviating from the main body bracket **110**. The deviation prevention portion **143-1** may be provided to interfere with the door bracket **120** to prevent the engaging portion **142-1** from deviating from the insertion portion **114** when the door **30** is in the position of closing the cooking chamber **20**. The deviation prevention portion **143-1** may protrude from the locking body **141-1**.

[0228] The deviation prevention portion **143-1** may extend in the direction away from the door bracket **120** from a tip **143***e***-1** coming into contact with the door bracket **120** at the second position when the door **30** closes the cooking chamber **20**. When the tip **143***e***-1** of the deviation prevention portion **143-1** comes into contact with the door bracket **120**, the tip **143***e***-1** and the door bracket **120** may come into contact to approximate a line contact.

[0229] The tip **143***e***-1** of the deviation prevention portion **143-1** may be provided on a side adjacent to the coupling shaft **182** of the deviation prevention portion **143-1**.

[0230] The locking member **140-1** may include an extension portion **141***a***-1** extending from the engaging portion **142-1** toward the deviation preventing portion **143-1**. The extension portion **141***a***-1** may be a portion of the locking body **141-1**.

[0231] As illustrated in FIG. **10**, the engaging portion **142-1** of the locking member **140-1** may include a plurality of engaging portions **142***a***-1** and **142***b***-1** separated from each other.

[0232] The plurality of engaging portions **142***a***-1** and **142***b***-1** may each be engaged with and coupled to the main body bracket **110**. In detail, the plurality of engaging portions **142***a***-1** and **142***b***-1** may be each inserted into the insertion portion **114**. In this case, the plurality of engaging portions **142***a***-1** and **142***b***-1** may be simultaneously inserted into the one insertion portion **114**, but is not limited thereto.

[0233] As an example, the plurality of engaging portions **142***a***-1** and **142***b***-1** may face each other in the Y direction.

[0234] As an example, the plurality of engaging portions **142***a***-1** and **142***b***-1** may be formed to have shapes or sizes corresponding to each other.

[0235] The locking member **140-1** may include a plurality of extension portions **141***aa***-1** and **141***ab***-1** extending from the plurality of engaging portions **142***a***-1** and **142***b***-1**, respectively, toward the deviation prevention portion **143-1**.

[0236] The deviation prevention portion **143-1** may connect the plurality of extension portions **141***aa***-1** and **141***ab***-1** to each other.

[0237] As illustrated in FIG. **10**, the engaging portion **142-1**, the deviation prevention portion **143-1**, and the extension portion **141***a***-1** of the locking member **140-1** may be formed integrally. For example, the locking member **140-1** may be formed such that opposite ends of the deviation prevention portion **143-1** are respectively are bent by the Y direction.

[0238] Furthermore, the locking member **140-1** may be formed as an entire body.

[0239] As an example, the locking member **140-1** may be composed of a metal material. However, the material of locking member **140-1** is not limited thereto.

[0240] The locking member **140-1** may include a pair of contact protrusions **144***a*-**1** and **144***b*-**1** in contact with each other.

[0241] A pair of the contact protrusions **144***a*-**1** and **144***b*-**1** may protrude from a pair of the engaging portions **142**, respectively. For example, the pair of contact protrusions **144***a*-**1** and **144***b*-**1** may protrude from the pair of engaging portions **142** in a direction in which a pair of the extension portions **141***aa*-**1** and **141***ab*-**1** extend, respectively.

[0242] In a process of manufacturing the locking member **140-1** by bending opposite ends of the deviation prevention portion **143-1** in the Y direction, the opposite ends of the deviation prevention portion **143-1** in the Y direction may be bent until the pair of contact protrusions **144***a*-**1** and **144***b*-**1** come into contact with each other.

[0243] As such, as the locking member **140-1** includes the pair of contact protrusions **144***a*-**1** and **144***b*-**1**, manufacturing efficiency of the locking member **140-1** including the pair of engaging portions **142** may be improved.

[0244] FIG. **11** is a view illustrating that some components of a hinge assembly of a cooking apparatus according to an embodiment of the present disclosure are exploded. FIG. **12** is a view illustrating a process of manufacturing the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure. FIG. **13** is a view illustrating a process of manufacturing the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0245] Components of the embodiment illustrated in FIGS. **11** to **13** that are the same as those of the embodiment illustrated in FIGS. **1** to **7** may be given the same reference numerals, and descriptions thereof may be omitted.

[0246] As illustrated in FIG. **1**, the door **30** and the control panel **41** of the cooking apparatus **1** according to an embodiment of the present disclosure may form at least a portion of a front appearance of the cooking apparatus **1**. When looking at cooking apparatus **1** with the cooking chamber **20** closed from the front, the user may perceive the front surface of the door **30** and a front surface of the control panel **41** as a main appearance of the cooking apparatus **1**.

[0247] In order to improve the external quality of the product, the door **30** and the control panel **41** of the cooking apparatus **1** may be required to be arranged parallel to each other in the vertical direction.

[0248] For example, as illustrated in FIG. **1**, it may be assumed that door **30** and control panel **41** are arranged in the vertical direction which is in the Z direction, and a width of the door **30** in the Y direction and a width of the control panel **41** in the Y direction are almost the same. In this case, when a left surface **41***a* of the control panel **41** and a left surface **30***a* of the door **30** are arranged parallel to each other in the vertical direction, and a right surface **41***b* of the control panel **41** and a right surface **30***b* of the door **30** are arranged parallel to each other in the vertical direction, the external quality may be improved when the cooking apparatus **1** is viewed from the front.

[0249] Referring to FIGS. **11** to **13**, in the hinge assembly **100** of the cooking apparatus **1** according to an embodiment of the present disclosure, at least a portion of the hinge link **130** may be accommodated in the main body bracket **110**. In detail, the main body coupling portion **131** of the hinge link **130** may be accommodated in the accommodation space **116** inside the main body bracket **110**.

[0250] As an example, as illustrated in FIG. **11**, a method of manufacturing the hinge assembly **100** of the cooking apparatus **1** according to an embodiment of the present disclosure may include a process of inserting the main body coupling portion **131** of the hinge link **130** into the accommodation space **116** through the coupling hole **112** of the main body bracket **110** to couple the hinge link **130** and the main body bracket **110**. In this case, a direction in which the main body coupling portion **131** is inserted into the accommodation space **116** by penetrating the coupling hole **112** may be substantially parallel to a front-rear direction which is the X direction with respect to the cooking apparatus **1**.

[0251] It may be assumed that a width (e.g., width in the Y direction) of the accommodation space **116** of the main body bracket **110** is wider than a width (in the same direction as the width of the accommodation space **116** mentioned above, e.g., width in the Y direction) of the main body coupling portion **131** accommodated in the accommodation space **116**. In this case, the hinge link **130** may not be fixed in a width direction of the accommodation space **116** relative to the main body bracket **110**, and the hinge link **130** may be movable in the width direction of the accommodation space **116** relative to the main body bracket **110**. In this case, the main body bracket **110** may be maintained in the fixed position relative to the main body **10**, and the hinge link **130** may be maintained in a fixed position relative to the door bracket **120**, so that a relative position of the door **30** to the main body **10** may be movable.

[0252] Because of this, for example, when the door **30** moves in the Y direction from a designed position of the door **30**, the door **30** and the control panel **41** are not arranged side by side, which may deteriorate the external quality of the product.

[0253] In order to solve this problem, the main body bracket **110** may include a protrusion portion **113** provided to prevent the hinge link **130** from moving. The protrusion portion **113** may be formed to protrude toward at least a portion of the hinge link **130** accommodated in the main body bracket **110**. In other words, the protrusion portion **113** may protrude toward the main body coupling portion **131** accommodated in the accommodation space **116** of the main body bracket **110**.

[0254] The protrusion portion **113** may be provided on an inner side of the main body bracket **110**. The protrusion portion **113** may protrude from the cover portion **111**. The protrusion portion **113** may protrude from the cover portion **111** in an inner direction of the accommodation space **116**. The protrusion portion **113** may protrude from the cover portion **111** toward at least a portion of the hinge link **130** (that is, the main body coupling portion **131**) accommodated in the accommodation space **116**.

[0255] The protrusion portion **113** may support the hinge link **130**. In detail, the protrusion portion **113** may support the hinge link **130** by being in contact with the main body coupling portion **131** of the hinge link **130** so that the hinge link **130** does not move relative to the main body bracket **110**. That is, the protrusion portion **113** may restrict a movement of the hinge link **130** so that the hinge link **130** does not move relative to the main body bracket **110**.

[0256] Because the protrusion portion **113** is provided to restrict the movement of the hinge link **130** after the hinge link **130** is coupled to the main body bracket **110**, the protrusion portion **113** may restrict the hinge link **130** from moving in a direction different from a direction in which the

main body coupling portion **131** is inserted into the main body bracket **110** in a process of coupling the hinge link **130** and the main body bracket **110**.

[0257] When the door bracket **120** and the main body bracket **110** are arranged to face each other in a first direction, the protrusion portion **113** may be provided to prevent the hinge link **130** from moving in a second direction different from the first direction. The protrusion portion **113** may protrude from the cover portion **111** in a direction parallel to the second direction and may support the hinge link **130** in the direction parallel to the second direction.

[0258] Herein, the first direction may be parallel to the direction in which the main body coupling portion **131** is inserted into the main body bracket **110** in the process of coupling the hinge link **130** and the main body bracket **110**. The first direction may also be parallel to a direction in which the main body **10** and the door **30** face each other. The first direction may also be parallel to the front-rear direction of the cooking apparatus **1**.

[0259] Herein, the second direction may be parallel to a direction in which the pair of side plates of the cover portion **111** face each other. The second direction may also be parallel to a direction in which the plurality of hinge assemblies **100***a* and **100***b* (see FIG. **2**) is arranged. The second direction may also be parallel to a direction of the rotation shaft of the door **30**. The second direction may also be parallel to a left-right direction of the cooking apparatus **1**.

[0260] More specifically, the first direction and the second direction may be orthogonal to each other. For example, based on the drawings, the first direction may be the X direction (the front-rear direction of the cooking apparatus **1**), and the second direction may be the Y direction (the left-right direction of the cooking apparatus **1**). As illustrated in FIGS. **11** to **13**, the protrusion portion **113** may restrict the movement of the hinge link **130** in the Y direction.

[0261] However, the second direction in which the protrusion portion **113** restricts the movement of the hinge link **130** is not limited to that described above, and may vary depending on a shape or size of the inside of the main body bracket **110** or a shape or size of the main body coupling portion **131** of the hinge link **130**.

[0262] Hereinafter, for convenience of explanation, an embodiment will be described as an example in which the first direction is parallel to the front-rear direction of the cooking apparatus **1** and the second direction is parallel to the left-right direction of the cooking apparatus **1**.

[0263] As an example, the protrusion portion **113** may include a pair of the protrusion portions **113** arranged to face each other. A distance between the pair of protrusion portions **113** may correspond to a thickness of at least a portion of the hinge link **130** accommodated in the main body bracket **110**, that is, a thickness of the main body coupling portion **131**.

[0264] As an example, the pair of protrusion portions **113** may be arranged in the Y direction of the cooking apparatus **1**. That is, the pair of protrusion portions **113** may be arranged in a left-right direction of the main body **10**. The pair of protrusion portions **113** may be arranged to face each other in the Y direction.

[0265] In this case, one protrusion portion of the pair of protrusion portions **113** may be in contact with a left side of the hinge link **130**, and the other protrusion portion of the pair of protrusion portions **113** may be in contact with a right side of the hinge link **130**.

[0266] However, the number of the protrusion portions **113** provided on the main body bracket **110** is not limited thereto, and for example, the main body bracket **110** may be provided with only a single protrusion portion, or may be provided with three or more protrusion portions.

[0267] With the above configuration, the main body bracket **110** of the hinge assembly **100** may prevent the hinge link **130** from moving relative to the main body bracket **110** by including the protrusion portion **113**.

[0268] However, in a case in which the internal space of the main body bracket **110** is formed narrow from a portion adjacent to the coupling hole **112** to correspond to the thickness of the main body coupling portion **131**, or the internal space of the main body bracket **110** is formed as a whole to correspond to the thickness of the main body coupling portion **131**, in the process of coupling the hinge link **130** and the main body bracket **110**, it may not be easy to insert the main body coupling portion **131** into the main body bracket **110**.

[0269] Therefore, it may be appropriate for the accommodation space **116** inside the main body bracket **110** to be formed to have a width wider than the thickness of the main body coupling portion **131** in a portion near the coupling hole **112** into which the main body coupling portion **131** begins to be inserted, and have a width narrowed by the protrusion portion **113** (i.e., a width corresponding to the thickness of the main body coupling portion **131**) at a rear portion in the X direction from the coupling hole **112**.

[0270] In other words, the protrusion portion **113** may be disposed to be spaced apart from one end of the cover portion **111** on the door bracket **120** side (that is, one end of the cover portion **111** on which the coupling hole **112** is formed). In detail, the protrusion portion **113** may be disposed further rearward in the X direction than the one end of the cover portion **111** on the door bracket **120** side. The protrusion portion **113** may be disposed further rearward in the X direction than the coupling hole **112**.

[0271] The one end of the cover portion **111** on the door bracket **120** side may be disposed to be spaced apart from the hinge link **130**. Also, at least a portion of the cover portion **111** positioned between the one end of the cover portion **111** on the door bracket **120** side and the protrusion portion **113** may be spaced apart from the hinge link **130**. With this configuration, the main body coupling portion **131** may be easily inserted into the main body bracket **110** in the process of coupling the hinge link **130** and the main body bracket **110**.

[0272] The protrusion portion **113** may include a first inclined surface **113***a*. The first inclined surface **113***a* may be provided on the inner side of the main body bracket **110**.

[0273] The first inclined surface **113***a* may extend to become close to the hinge link **130** as the first inclined surface becomes away from the door bracket **120**. The first inclined surface **113***a* may extend such that a length thereof protruding from the cover portion **111** becomes long and to become close to the main body coupling portion **131** of the hinge link **130**, as the first inclined surface becomes away from the door bracket **120**. The first inclined surface **113***a* may extend to protrude toward an inner side of the accommodation space **116** in the Y direction as the first inclined surface faces rearward in the X direction. The first inclined

surface **113***a* may extend to be inclined in the front-rear direction of the cooking apparatus **1**.

[0274] The first inclined surface **113***a* may guide a movement of the main body coupling portion **131** so that the main body coupling portion **131** may be easily inserted into the main body bracket **110** in the process of coupling the hinge link **130** and the main body bracket **110**.

[0275] The protrusion portion **113** may include a second inclined surface **113***b* extending in a different direction from the first inclined surface **113***a*. The second inclined surface **113***b* may be provided on the inner side of the main body bracket **110**.

[0276] The second inclined surface **113***b* may extend to become away from the hinge link **130** as the second inclined surface becomes away from the door bracket **120**. The second inclined surface **113***b* may extend such that a length thereof protruding from the cover portion **111** becomes short and to become away from the main body coupling portion **131** of the hinge link **130**, as the second inclined surface becomes away from the door bracket **120**. The second inclined surface **113***b* may extend such that a degree to which the second inclined surface protrudes inwardly from the accommodation space **116** in the Y direction becomes short as the second inclined surface faces rearward in the X direction. The second inclined surface **113***b* may extend to be inclined in the front-rear direction of the cooking apparatus **1**.

[0277] The protrusion portion **113** may include a contact surface **113***c* provided to come into contact with the hinge link **130**. The contact surface **113***c* may be provided on the inner side of the main body bracket **110** to come into contact with the main body coupling portion **131**.

[0278] The contact surface **113***c* may be provided between the first inclined surface **113***a* and the second inclined surface **113***b*. The contact surface **113***c* may support the hinge link **130** and restrict the movement of the hinge link **130**. The contact surface **113***c* may distribute a load that the protrusion portion **113** receives from the hinge link **130**.

[0279] The contact surface **113***c* may extend in a direction substantially parallel to the X direction, or extend such that an angle at which an extension direction of the contact surface **113***c* is inclined with respect to the X direction is at least smaller than angles at which the first inclined surface **113***a* and the second inclined surface **113***b* are inclined with respect to the X direction, respectively.

[0280] As an example, the protrusion portion **113** may be formed to have an entirely convex curved shape. As illustrated in FIGS. **11** to **13**, the first inclined surface **113***a*, the second inclined surface **113***b*, and the contact surface **113***c* may each be formed in a convex curved shape toward the hinge link **130**. In this case, the contact surface **113***c* may more efficiently distribute the load that the protrusion portion **113** receives from the hinge link **130**.

[0281] As an example, the protrusion portion **113** may be formed such that a length thereof in the Z direction is longer than a length thereof in the X direction. However, the protrusion portion **113** is not limited thereto and may have various lengths depending on directions.

[0282] As an example, the protrusion portion **113** may be formed integrally with the cover portion **111**.

[0283] As an example, the protrusion portion **113** may be manufactured using press processing in which a sheet material used as a raw material for the cover portion **111** is pressed into a mold.

[0284] However, the protrusion portion **113** is not limited thereto, and may be manufactured using various manufacturing methods and may be formed as a component distinct from the cover portion **111**.

[0285] FIGS. **11** to **13** illustrate the hinge assembly **100** that is identical to the hinge assembly **100** of the embodiment illustrated in FIGS. **3** to **7**, but is not limited thereto, and the configuration (protrusion portion **113**, etc.) of the hinge assembly **100** described with reference to FIGS. **11** to **13** may be equally applied to the hinge assembly **100-1** of the embodiment described with reference to FIGS. **8** to **10**.

[0286] FIG. **14** is an enlarged cross-sectional view illustrating that the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure is cut in a transverse direction and enlarged.

[0287] Components of the embodiment illustrated in FIG. **14** that are the same as those of the embodiments illustrated in FIGS. **1** to **13** may be given the same reference numerals, and descriptions thereof may be omitted.

[0288] Referring to FIG. **14**, in the hinge assembly **100** of the cooking apparatus **1** according to an embodiment of the present disclosure, at least a portion of the hinge link **130** may be accommodated inside a main body bracket **110-2**. In detail, the main body coupling portion **131** of the hinge link **130** may be accommodated in the accommodation space **116** inside the main body bracket **110-2**.

[0289] The main body bracket **110-2** may include a protrusion portion **113-2** provided to prevent the hinge link **130** from moving. The protrusion portion **113-2** may be formed to protrude toward the at least a portion of the hinge link **130** accommodated in the main body bracket **110-2**. In other words, the protrusion portion **113-2** may protrude toward the main body coupling portion **131** accommodated in the accommodation space **116** of the main body bracket **110-2**.

[0290] The protrusion portion **113-2** may be provided on an inner side of the main body bracket **110-2**. The protrusion portion **113-2** may protrude from a cover portion **111-2**. The protrusion portion **113-2** may protrude from the cover portion **111-2** in an inner direction of the accommodation space **116**. The protrusion portion **113-2** may protrude from the cover portion **111-2** toward at least a portion (that is, the main body coupling portion **131**) of the hinge link **130** accommodated in the accommodation space **116**.

[0291] The protrusion portion **113-2** may support the hinge link **130**. In detail, the protrusion portion **113-2** may support the hinge link **130** by being in contact with the main body coupling portion **131** of the hinge link **130** so that the hinge link **130** does not move relative to the main body bracket **110-2**. That is, the protrusion portion **113-2** may restrict the movement of the hinge link **130** so that the hinge link **130** does not move relative to the main body bracket **110-2**.

[0292] The protrusion portion **113-2** may restrict the hinge link **130** from moving in a direction different from a direction in which the main body coupling portion **131** is inserted into the main body bracket **110-2** in a process of coupling the hinge link **130** and the main body bracket **110-2**.

[0293] When the door bracket **120** and the main body bracket **110-2** are arranged to face each other in the first direction, the protrusion portion **113-2** may be provided to prevent the hinge link **130** from moving in the second direction different from the first direction. The protrusion portion **113-2** may protrude from the cover portion **111-2** in

a direction parallel to the second direction and may support the hinge link **130** in the direction parallel to the second direction.

[0294] Herein, the first direction may be parallel to the direction in which the main body coupling portion **131** is inserted into the main body bracket **110-2** in the process of coupling the hinge link **130** and the main body bracket **110-2**. The first direction may also be parallel to the direction in which the main body **10** and the door **30** face each other. The first direction may also be parallel to the front-rear direction of the cooking apparatus **1**.

[0295] Herein, the second direction may be parallel to a direction in which a pair of side plates of the cover portion **111-2** face each other. The second direction may also be parallel to the direction in which the plurality of hinge assemblies **100***a* and **100***b* (see FIG. **2**) is arranged. The second direction may also be parallel to the direction of the rotation shaft of the door **30**. The second direction may also be parallel to the left-right direction of the cooking apparatus **1**.

[0296] More specifically, the first direction and the second direction may be orthogonal to each other. For example, based on the drawing, the first direction may be the X direction (the front-rear direction of the cooking apparatus **1**), and the second direction may be the Y direction (the left-right direction of the cooking apparatus **1**). As illustrated in FIG. **14**, the protrusion portion **113-2** may restrict the movement of the hinge link **130** in the Y direction.

[0297] However, the second direction in which the protrusion portion **113-2** restricts the movement of the hinge link **130** is not limited to that described above, and may vary depending on a shape or size of the inside of the main body bracket **110-2** or the shape or size of the main body coupling portion **131** of the hinge link **130**.

[0298] Hereinafter, for convenience of explanation, an embodiment will be described as an example in which the first direction is parallel to the front-rear direction of the cooking apparatus **1** and the second direction is parallel to the left-right direction of the cooking apparatus **1**.

[0299] As an example, the protrusion portion **113-2** may include a pair of the protrusion portions **113-2** arranged to face each other. A distance between the pair of protrusion portions **113-2** may correspond to a thickness of at least a portion of the hinge link **130** accommodated in the main body bracket **110-2**, that is, a thickness of the main body coupling portion **131**.

[0300] As an example, the pair of protrusion portions **113-2** may be arranged in the Y direction of the cooking apparatus **1**. That is, the pair of protrusion portions **113-2** may be arranged in the left-right direction of the main body **10**. The pair of protrusion portions **113-2** may be arranged to face each other in the Y direction.

[0301] In this case, one protrusion portion of the pair of protrusion portions **113-2** may be in contact with the left side of the hinge link **130**, and the other protrusion portion of the pair of protrusion portions **113-2** may be in contact with the right side of the hinge link **130**.

[0302] However, the number of the protrusion portions **113-2** provided on the main body bracket **110-2** is not limited thereto, and for example, the main body bracket **110-2** may be provided with only a single protrusion portion, or may be provided with three or more protrusion portions.

[0303] With the above configuration, the main body bracket **110-2** of the hinge assembly **100** may prevent the hinge link **130** from moving relative to the main body bracket **110-2** by including the protrusion portion **113-2**.

[0304] The protrusion portion **113-2** may be disposed to be spaced apart from one end of the cover portion **111-2** on the door bracket **120** side. In detail, the protrusion portion **113-2** may be disposed further rearward in the X direction than the one end of the cover portion **111-2** on the door bracket **120** side.

[0305] The one end of the cover portion **111-2** on the door bracket **120** side may be disposed to be spaced apart from the hinge link **130**. Also, at least a portion of the cover portion **111-2** positioned between the one end of the cover portion **111-2** on the door bracket **120** side and the protrusion portion **113-2** may be spaced apart from the hinge link **130**. With this configuration, the main body coupling portion **131** may be easily inserted into the main body bracket **110-2** in the process of coupling the hinge link **130** and the main body bracket **110-2**.

[0306] The protrusion portion **113-2** may include a first inclined surface **113***a***-2**. The first inclined surface **113***a***-2** may be provided on the inner side of the main body bracket **110-2**.

[0307] The first inclined surface **113***a***-2** may extend to become close to the hinge link **130** as the first inclined surface becomes away from the door bracket **120**. The first inclined surface **113***a***-2** may extend such that a length thereof protruding from the cover portion **111-2** becomes long and to become close to the main body coupling portion **131** of the hinge link **130**, as the first inclined surface becomes away from the door bracket **120**. The first inclined surface **113***a***-2** may extend to protrude toward the inner side of the accommodation space **116** in the Y direction as the first inclined surface faces rearward in the X direction. The first inclined surface **113***a***-2** may extend to be inclined in the front-rear direction of the cooking apparatus **1**.

[0308] The protrusion portion **113-2** may include a second inclined surface **113***b***-2** extending in a different direction from the first inclined surface **113***a***-2**. The second inclined **113***b***-2** may be provided on the inner side of the main body bracket **110-2**.

[0309] The second inclined surface **113***b***-2** may extend to become away from the hinge link **130** as the second inclined surface becomes away from the door bracket **120**. The second inclined surface **113***b***-2** may extend such that a length thereof protruding from the cover portion **111-2** becomes short and to become away from the main body coupling portion **131** of the hinge link **130**, as the second inclined surface becomes away from the door bracket **120**. The second inclined surface **113***b***-2** may extend such that a degree to which the second inclined surface protrudes inwardly from the accommodation space **116** in the Y direction becomes short as the second inclined surface faces rearward in the X direction. The second inclined surface **113***b***-2** may extend to be inclined in the front-rear direction of the cooking apparatus **1**.

[0310] The protrusion portion **113-2** may include a contact surface **113***c***-2** provided to come into contact with the hinge link **130**. The contact surface **113***c***-2** may be provided on the inner side of the main body bracket **110-2** to come into contact with the main body coupling portion **131**.

[0311] The contact surface **113***c***-2** may be provided between the first inclined surface **113***a* and the second

inclined surface **113***b*-**2**. The contact surface **113***c*-**2** may support the hinge link **130** and restrict the movement of the hinge link **130**.

[0312] The contact surface **113***c*-**2** may extend in a direction substantially parallel to the X direction, or extend such that an angle at which an extension direction of the contact surface **113***c*-**2** is inclined with respect to the X direction is at least smaller than angles at which the first inclined surface **113***a*-**2** and the second inclined surface **113***b*-**2** are inclined with respect to the X direction, respectively.

[0313] As illustrated in FIG. **14**, the first inclined surface **113***a*-**2**, the second inclined surface **113***b*-**2**, and the contact surface **113***c*-**2** may each be formed in a flat shape.

[0314] As an example, the protrusion portion **113-2** may be formed such that a length thereof in the Z direction is longer than a length thereof in the X direction. However, the protrusion portion **113-2** is not limited thereto and may have various lengths depending on directions.

[0315] As an example, the protrusion portion **113-2** may be formed integrally with the cover portion **111-2**.

[0316] As an example, the protrusion portion **113-2** may be manufactured using forming processing in which a sheet metal is pressed using a mold.

[0317] However, the protrusion portion **113-2** is not limited thereto, and may be manufactured using various manufacturing methods and may be formed as a component distinct from the cover portion **111-2**.

[0318] FIG. **15** is an enlarged cross-sectional view illustrating that the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure is cut in the transverse direction and enlarged.

[0319] Components of the embodiment illustrated in FIG. **15** that are the same as those of the embodiments illustrated in FIGS. **1** to **13** may be given the same reference numerals, and descriptions thereof may be omitted.

[0320] Referring to FIG. **15**, in the hinge assembly **100** of the cooking apparatus **1** according to an embodiment of the present disclosure, at least a portion of the hinge link **130** may be accommodated inside a main body bracket **110-3**. In detail, the main body coupling portion **131** of the hinge link **130** may be accommodated in the accommodation space **116** inside the main body bracket **110-3**.

[0321] The main body bracket **110-3** may include a protrusion portion **113-3** provided to prevent the hinge link **130** from moving. The protrusion portion **113-3** may be formed to protrude toward the at least a portion of the hinge link **130** accommodated in the main body bracket **110-3**. In other words, the protrusion portion **113-3** may protrude toward the main body coupling portion **131** accommodated in the accommodation space **116** of the main body bracket **110-3**.

[0322] The protrusion portion **113-3** may be provided on an inner side of the main body bracket **110-3**. The protrusion portion **113-3** may protrude from a cover portion **111-3**. The protrusion portion **113-3** may protrude from the cover portion **111-3** in the inner direction of the accommodation space **116**. The protrusion portion **113-3** may protrude from the cover portion **111-3** toward at least a portion (that is, the main body coupling portion **131**) of the hinge link **130** accommodated in the accommodation space **116**.

[0323] The protrusion portion **113-3** may support the hinge link **130**. In detail, the protrusion portion **113-3** may support the hinge link **130** by being in contact with the main body coupling portion **131** of the hinge link **130** so that the hinge link **130** does not move relative to the main body bracket **110-3**. That is, the protrusion portion **113-3** may restrict the movement of the hinge link **130** so that the hinge link **130** does not move relative to the main body bracket **110-3**.

[0324] The protrusion portion **113-3** may restrict the hinge link **130** from moving in a direction different from a direction in which the main body coupling portion **131** is inserted into the main body bracket **110-3** in a process of coupling the hinge link **130** and the main body bracket **110-3**.

[0325] When the door bracket **120** and the main body bracket **110-3** are arranged to face each other in the first direction, the protrusion portion **113-3** may be provided to prevent the hinge link **130** from moving in the second direction different from the first direction. The protrusion portion **113-3** may protrude from the cover portion **111-3** in a direction parallel to the second direction and may support the hinge link **130** in the direction parallel to the second direction.

[0326] Herein, the first direction may be parallel to the direction in which the main body coupling portion **131** is inserted into the main body bracket **110-3** in the process of coupling the hinge link **130** and the main body bracket **110-3**. The first direction may also be parallel to the direction in which the main body **10** and the door **30** face each other. The first direction may also be parallel to the front-rear direction of the cooking apparatus **1**.

[0327] Herein, the second direction may be parallel to a direction in which a pair of side plates of the cover portion **111-3** face each other. The second direction may also be parallel to the direction in which the plurality of hinge assemblies **100***a* and **100***b* (see FIG. **2**) is arranged. The second direction may also be parallel to the direction of the rotation shaft of the door **30**. The second direction may also be parallel to the left-right direction of the cooking apparatus **1**.

[0328] More specifically, the first direction and the second direction may be orthogonal to each other. For example, based on the drawing, the first direction may be the X direction (the front-rear direction of the cooking apparatus **1**), and the second direction may be the Y direction (the left-right direction of the cooking apparatus **1**). As illustrated in FIG. **15**, the protrusion portion **113-3** may restrict the movement of the hinge link **130** in the Y direction.

[0329] However, the second direction in which the protrusion portion **113-3** restricts the movement of the hinge link **130** is not limited to that described above, and may vary depending on a shape or size of the inside of the main body bracket **110-3** or the shape or size of the main body coupling portion **131** of the hinge link **130**.

[0330] Hereinafter, for convenience of explanation, an embodiment will be described as an example in which the first direction is parallel to the front-rear direction of the cooking apparatus **1** and the second direction is parallel to the left-right direction of the cooking apparatus **1**.

[0331] As an example, the protrusion portion **113-3** may include a pair of the protrusion portions **113-3** arranged to face each other. A distance between the pair of protrusion portions **113-3** may correspond to a thickness of at least a portion of the hinge link **130** accommodated in the main body bracket **110-3**, that is, a thickness of the main body coupling portion **131**. Herein, a distance between the pair of protrusion portions **113-3** refers to the shortest distance between the pair of protrusion portions **113-3**.

[0332] As an example, the pair of protrusion portions **113-3** may be arranged in the Y direction of the cooking apparatus **1**. That is, the pair of protrusion portions **113-3** may be arranged in the left-right direction of the main body **10**. The pair of protrusion portions **113-3** may be arranged to face each other in the Y direction.

[0333] In this case, one protrusion portion of the pair of protrusion portions **113-3** may be in contact with the left side of the hinge link **130**, and the other protrusion portion of the pair of protrusion portions **113-3** may be in contact with the right side of the hinge link **130**.

[0334] However, the number of the protrusion portions **113-3** provided on the main body bracket **110-3** is not limited thereto, and for example, the main body bracket **110-3** may be provided with only a single protrusion portion, or may be provided with three or more protrusion portions.

[0335] With the above configuration, the main body bracket **110-3** of the hinge assembly **100** may prevent the hinge link **130** from moving relative to the main body bracket **110-3** by including the protrusion portion **113-3**.

[0336] The protrusion portion **113-3** may be disposed to be spaced apart from one end of the cover portion **111-3** on the door bracket **120** side. In detail, the protrusion portion **113-3** may be disposed further rearward in the X direction than the one end of the cover portion **111-3** on the door bracket **120** side.

[0337] The one end of the cover portion **111-3** on the door bracket **120** side may be disposed to be spaced apart from the hinge link **130**. Also, at least a portion of the cover portion **111-3** positioned between the one end of the cover portion **111-3** on the door bracket **120** side and the protrusion portion **113-3** may be spaced apart from the hinge link **130**. With this configuration, the main body coupling portion **131** may be easily inserted into the main body bracket **110-3** in the process of coupling the hinge link **130** and the main body bracket **110-3**.

[0338] The protrusion portion **113-3** may extend to become close to the hinge link **130** as the protrusion portion becomes away from the door bracket **120**. The protrusion portion **113-3** may extend such that a length thereof protruding from the cover portion **111-3** becomes long and to become close to the main body coupling portion **131** of the hinge link **130**, as the protrusion portion becomes away from the door bracket **120**. The protrusion portion **113-3** may extend to protrude toward the inner side of the accommodation space **116** in the Y direction as the first inclined surface faces rearward in the X direction. The protrusion portion **113-3** may extend to be inclined in the front-rear direction of the cooking apparatus **1**.

[0339] A rear end of the protrusion portion **113-3** in the X direction may come into contact with the main body coupling portion **131**.

[0340] As illustrated in FIG. **15**, the protrusion portion **113-3** may extend to have a certain inclination angle with respect to the X direction, but an extension direction of the protrusion portion **113-3** is not limited thereto.

[0341] As an example, the protrusion portion **113-3** may be formed integrally with the cover portion **111-3**.

[0342] As an example, the protrusion portion **113-3** may be manufactured using lancing processing in which a portion of the sheet metal is cut out and pressed into a mold.

[0343] However, the protrusion portion **113-3** is not limited thereto, and may be manufactured using various manufacturing methods and may be formed as a component distinct from the cover portion **111-3**.

[0344] FIG. **16** is an enlarged cross-sectional view illustrating that the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure is cut in the transverse direction and enlarged.

[0345] Components of the embodiment illustrated in FIG. **16** that are the same as those of the embodiments illustrated in FIGS. **1** to **13** may be given the same reference numerals, and descriptions thereof may be omitted.

[0346] Referring to FIG. **16**, in the hinge assembly **100** of the cooking apparatus **1** according to an embodiment of the present disclosure, at least a portion of the hinge link **130** may be accommodated inside a main body bracket **110-4**. In detail, the main body coupling portion **131** of the hinge link **130** may be accommodated in the accommodation space **116** inside the main body bracket **110-4**.

[0347] The main body bracket **110-4** may include a protrusion member **113-4** provided to prevent the hinge link **130** from moving. The protrusion member **113-4** may be formed to protrude toward the at least a portion of the hinge link **130** accommodated in the main body bracket **110-4**. In other words, the protrusion member **113-4** may protrude toward the main body coupling portion **131** accommodated in the accommodation space **116** of the main body bracket **110-4**.

[0348] As illustrated in FIG. **16**, the protrusion member **113-4** may be coupled to a cover portion **111-4** of the main body bracket **110-4**. The protrusion member **113-4** may be composed of a distinct component from the cover portion **111-4**.

[0349] At least a portion of the protrusion member **113-4** may be positioned on an inner side of the main body bracket **110-4**. The at least a portion of the protrusion member **113-4** may be positioned further inward than the cover portion **111-4**, and may protrude from the cover portion **111-4** toward at least a portion (that is, the main body coupling portion **131**) of the hinge link **130** accommodated in the accommodation space **116**.

[0350] The protrusion member **113-4** may support the hinge link **130**. In detail, the at least a portion of the protrusion member **113-4** disposed on the inner side of the main body bracket **110-4** may support the hinge link **130** by being in contact with the main body coupling portion **131** of the hinge link **130** so that the hinge link **130** does not move relative to the main body bracket **110-4**. That is, the protrusion member **113-4** may restrict the movement of the hinge link **130** so that the hinge link **130** does not move relative to the main body bracket **110-4**.

[0351] The protrusion member **113-4** may restrict the hinge link **130** from moving in a direction different from a direction in which the main body coupling portion **131** is inserted into the main body bracket **110-4** in a process of coupling the hinge link **130** and the main body bracket **110-4**.

[0352] When the door bracket **120** and the main body bracket **110-4** are arranged to face each other in the first direction, the protrusion member **113-4** may be provided to prevent the hinge link **130** from moving in the second direction different from the first direction.

[0353] Herein, the first direction may be parallel to the direction in which the main body coupling portion **131** is inserted into the main body bracket **110-4** in the process of coupling the hinge link **130** and the main body bracket **110-4**. The first direction may also be parallel to the direction

in which the main body **10** and the door **30** face each other. The first direction may also be parallel to the front-rear direction of the cooking apparatus **1**.

[0354] Herein, the second direction may be parallel to a direction in which a pair of side plates of the cover portion **111-4** face each other. The second direction may also be parallel to the direction in which the plurality of hinge assemblies **100***a* and **100***b* (see FIG. **2**) is arranged. The second direction may also be parallel to the direction of the rotation shaft of the door **30**. The second direction may also be parallel to the left-right direction of the cooking apparatus **1**.

[0355] More specifically, the first direction and the second direction may be orthogonal to each other. For example, based on the drawing, the first direction may be the X direction (the front-rear direction of the cooking apparatus **1**), and the second direction may be the Y direction (the left-right direction of the cooking apparatus **1**). As illustrated in FIG. **16**, the protrusion member **113-4** may restrict the movement of the hinge link **130** in the Y direction.

[0356] However, the second direction in which the protrusion member **113-4** restricts the movement of the hinge link **130** is not limited to that described above, and may vary depending on a shape or size of the inside of the main body bracket **110-4** or the shape or size of the main body coupling portion **131** of the hinge link **130**.

[0357] Hereinafter, for convenience of explanation, an embodiment will be described as an example in which the first direction is parallel to the front-rear direction of the cooking apparatus **1** and the second direction is parallel to the left-right direction of the cooking apparatus **1**.

[0358] As an example, the protrusion member **113-4** may be disposed to penetrate the cover portion **111-4**. At least one portion of the protrusion member **113-4** may be disposed on an inner side of the main body bracket **110-4**, and at least other portion of the protrusion member **113-4** may be disposed on an outer side of the main body bracket **110-4**. The at least one portion of the protrusion member **113-4** positioned on the inner side of the main body bracket **110-4** may be formed such that a width thereof in the X direction is wider than a width of a hole of the cover portion **111-4** in the X direction through which the protrusion member **113-4** penetrates. The at least other portion of the protrusion member **113-4** positioned on the outer side of the main body bracket **110-4** may be formed such that a width thereof in the X direction is wider than the width of the hole of the cover portion **111-4** in the X direction through which the protrusion member **113-4** penetrates.

[0359] As an example, the protrusion member **113-4** may include a pair of the protrusion members **113-4** arranged to face each other. A distance between the pair of protrusion members **113-4** may correspond to a thickness of at least a portion of the hinge link **130** accommodated in the main body bracket **110-4**, that is, the thickness of the main body coupling portion **131**. Herein, a distance between the pair of protrusion members **113-4** refers to the shortest distance between the pair of protrusion members **113-4**.

[0360] As an example, the pair of protrusion members **113-4** may be arranged in the Y direction of the cooking apparatus **1**. That is, the pair of protrusion members **113-4** may be arranged in the left-right direction of the main body **10**. The pair of protrusion members **113-4** may be arranged to face each other in the Y direction.

[0361] In this case, one protrusion member of the pair of protrusion members **113-4** may be in contact with the left side of the hinge link **130**, and the other protrusion member of the pair of protrusion members **113-4** may be in contact with the right side of the hinge link **130**.

[0362] However, the number of the protrusion members **113-4** provided on the main body bracket **110-4** is not limited thereto, and for example, the main body bracket **110-4** may be provided with only a single protrusion member, or may be provided with three or more protrusion members.

[0363] The protrusion member **113-4** may be disposed to be spaced apart from one end of the cover portion **111-4** on the door bracket **120** side. In detail, the protrusion member **113-4** may be disposed further rearward in the X direction than the one end of the cover portion **111-4** on the door bracket **120** side.

[0364] The one end of the cover portion **111-4** on the door bracket **120** side may be disposed to be spaced apart from the hinge link **130**. Also, at least a portion of the cover portion **111-4** positioned between the one end of the cover portion **111-4** on the door bracket **120** side and the protrusion member **113-4** may be spaced apart from the hinge link **130**.

[0365] With the above configuration, the main body bracket **110-4** of the hinge assembly **100** may prevent the hinge link **130** from moving relative to the main body bracket **110-4** by including the protrusion member **113-4**. The "at least a portion of the protrusion member **113-4** disposed on the inner side of the main body bracket **110-4**" described above may have a configuration corresponding to the "protrusion portion **113**" of the embodiment described with reference to FIGS. **11** to **13**, etc., and may provide a corresponding function.

[0366] As an example, at least a portion of the protrusion member **113-4** disposed on the inner side of the main body bracket **110-4** may include a first inclined surface extending to become close to the hinge link **130** as the first inclined surface becomes away from the door bracket **120**, a second inclined surface extending to become away from the hinge link **130** as the second inclined surface becomes away from the door bracket **120**, and a contact surface disposed between the first and second inclined surfaces and in contact with the hinge link **130**.

[0367] However, the protrusion member **113-4** described with reference to FIG. **16** is only an example of a protrusion member that is provided as a component distinct from the cover portion in the hinge assembly of the cooking apparatus according to the present disclosure and is coupled to the cover portion, and the present disclosure is not limited thereto. For example, a protrusion member provided as a component distinct from the cover portion **111-4** of the main body bracket **110-4** and coupled to the cover portion **111-4** may be formed to include a shape corresponding to the protrusion portions **113-2** and **113-3** described with reference to FIGS. **14** and **15**.

[0368] FIG. **17** is a view illustrating a hinge assembly when a door closes a cooking chamber in the cooking apparatus according to an embodiment of the present disclosure. FIG. **18** is a view illustrating the hinge assembly when the door partially opens the cooking chamber in the cooking apparatus according to an embodiment of the present disclosure. FIG. **19** is an enlarged view of some components of the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0369] Components of the embodiment illustrated in FIGS. **17** to **19** that are the same as those of the embodiments illustrated in FIGS. **1** to **16** may be given the same reference numerals, and descriptions thereof may be omitted.

[0370] Referring to FIGS. **17** to **19**, the cooking apparatus **1** according to an embodiment of the present disclosure may include the hinge assembly **1100** configured to connect the door **30** and the main body **10**.

[0371] The hinge assembly **1100** may include the main body bracket **1110** coupled to the main body **10** and a door bracket **1120** coupled to the door **30**.

[0372] The main body bracket **1110** of FIGS. **17** to **19** may have features corresponding to the configuration, function, etc., of the main body bracket **110** described in the embodiments of FIGS. **1** to **16**, and a detailed description thereof will be omitted.

[0373] Similarly, the door bracket **1120** of FIGS. **17** to **19** may have features corresponding to the configuration, function, etc., of the door bracket **120** described in the embodiments of FIGS. **1** to **16**, and a detailed description thereof will be omitted.

[0374] The hinge assembly **1100** may include the hinge link **1130** configured to connect the main body bracket **1110** and the door bracket **1120**. The hinge link **1130** may support the door bracket **1120** such that the door bracket **1120** is rotatable relative to the main body bracket **1110**.

[0375] At least a portion of the hinge link **1130** may be accommodated inside the main body bracket **1110**. The hinge link **1130** may penetrate a coupling hole **1112** of the main body bracket **1110**. The at least a portion of the hinge link **1130** accommodated inside the main body bracket **1110** may be covered by the cover portion **1111**.

[0376] The hinge link **1130** may include a main body coupling portion **1131** coupled to the main body bracket **1110**. The main body coupling portion **1131** may be fixed to the main body bracket **1110**. The main body coupling portion **1131** may be accommodated inside the main body bracket **1110**.

[0377] The hinge link **1130** may include a door coupling portion **1132** coupled to the door bracket **1120**. The door bracket **1120** may be coupled to the door coupling portion **1132** by the door rotation shaft **181**. The door bracket **1120** may rotate relative to the hinge link **1130** about the door rotation shaft **181**.

[0378] The hinge link **1130** may include an intermediate portion **1133** positioned between the main body coupling portion **1131** and the door coupling portion **1132**.

[0379] Hereinafter, a structure of the hinge assembly **1100** for fixing the hinge link **1130** to the main body bracket **1110** will be described in detail.

[0380] The hinge assembly **1100** may include a first supporter **1171** configured to support one side of the hinge link **1130**. The first supporter **1171** may be configured to support the one side of the hinge link **1130** to prevent the hinge link **1130** from moving in a first direction m**1** relative to the main body bracket **1110**. The first supporter **1171** may also be configured to support the one side of the hinge link **1130** to prevent the hinge link **1130** from moving in the Z direction relative to the main body bracket **1110**.

[0381] In detail, the first supporter **1171** may prevent the hinge link **1130** from rotating in the first direction m**1** relative to the main body bracket **1110**. For example, the first direction m**1** may be a counterclockwise direction based on FIG. **19**, etc.

[0382] As an example, the first supporter **1171** may support at least a portion of the hinge link **1130** accommodated in the main body bracket **1110**, that is, the main body coupling portion **1131** on an upper side. The first supporter **1171** may prevent the main body coupling portion **1131** from moving upward and from rotating in the first direction m**1**.

[0383] The hinge link **1130** may include a winding portion **1131***a* formed to surround at least a portion of an outer surface of the first supporter **1171**. The winding portion **1131***a* may be provided in the main body coupling portion **1131**.

[0384] As an example, the winding portion **1131***a* may be provided on an upper side of the main body coupling portion **1131**. As an example, the winding portion **1131***a* may be provided at the rear of the main body coupling portion **1131** in the X direction.

[0385] The first supporter **1171** may be disposed to penetrate the main body bracket **1110**. The first supporter **1171** may penetrate a pair of side plates of the cover portion **1111** in the Y direction.

[0386] As an example, the first supporter **1171** may be composed of a rivet.

[0387] The hinge assembly **1100** may include an elastic system configured to enable the efficient rotational movement of the door **30** when the door **30** opens or closes the cooking chamber **20**. A description of the elastic system of the hinge assembly **1100** illustrated in FIGS. **17** to **19** is the same as the description of the elastic system of the hinge assembly **100** of the embodiments illustrated in FIGS. **1** to **16**, and a detailed description thereof will be omitted.

[0388] The door coupling portion **1132** may be provided with a roller contact portion **1135** provided to be in contact with the roller **163** of the second elastic member **160**. As the door bracket **1120** rotates by the hinge link **1130** when the door **30** rotates, the roller **163** may move on the roller contact portion **1135**. The degree of the elastic force accumulated in the second elastic spring **161** may vary depending on a relative position of the roller **163** with respect to the roller contact portion **1135**.

[0389] Referring to FIGS. **18** and **19**, when the door **30** rotates to open the cooking chamber **20** (see FIG. **19**) from a position of closing the cooking chamber **20** (see FIG. **18**), the relative position of the roller **163** with respect to the roller contact portion **1135** may be moved. For example, when the door **30** rotates from a position illustrated in FIG. **18** to a position illustrated in FIG. **19**, the second elastic spring **161** may receive a force in a compressed direction. As a reaction to this, the roller contact portion **1135** may receive the force from the roller **163**.

[0390] The main body bracket **1110** may include a link support portion **1115** provided at one end of the main body bracket **1110** on the door bracket **1120** side and provided to support the hinge link **1130**. The link support portion **1115** may support a portion of the hinge link **130** corresponding to the main body coupling portion **1131** and the intermediate portion **1133**. The link support portion **1115** of the embodiment illustrated in FIGS. **17** to **19** may have features corresponding to the link support portion **115** of the embodiments illustrated in FIGS. **1** to **16**, and a detailed description thereof will be omitted.

[0391] The hinge link **1130** may include a support groove **1134** formed to correspond to the link support portion **1115**. The support groove **1134** may be formed to engage with and be coupled to the link support portion **1115**. The support

groove **1134** of the embodiment illustrated in FIGS. **17** to **19** may have features corresponding to the support groove **134** of the embodiments illustrated in FIGS. **1** to **16**, and a detailed description thereof will be omitted.

[0392] As described above, when the door **30** rotates from the position illustrated in FIG. **18** to the position illustrated in FIG. **19**, the roller contact portion **1135** may receive the force from the roller **163**. Or, the roller contact portion **1135** may receive the force from the roller **163** for various reasons, such as in cases in which an external force for rotating the door **30** in the closing direction is not sufficient when the door **30** rotates in the direction of closing the cooking chamber **20**, and the second elastic member **160** functions as a damper to reduce a rotational speed of the door **30** when the door **30** rotates in the direction of closing the cooking chamber **20**.

[0393] A problem may occur in that the hinge link **1130** moves relative to the main body bracket **1110** due to the force received from the roller **163** by the roller contact portion **1135**. In particular, a further problem may occur because a point at which the link support portion **1115** and the support groove **1134** are engaged with each other may also function as a rotation axis that causes the hinge link **1130** to rotate in a second direction m**2** relative to the main body bracket **1110**.

[0394] In addition, the hinge link **1130** may receive an external force to move relative to the main body bracket **1110** due to various causes, such as opening and closing of the door **30** or an external impact.

[0395] In order to prevent these problems, the hinge assembly **1100** may include a second supporter **1172** configured to support the other side of the hinge link **1130**. The second supporter **1172** may be configured to support the other side of the hinge link **1130** to prevent the hinge link **1130** from moving in the second direction m**2** different from the first direction m**1** relative to the main body bracket **1110**. The second supporter **1172** may also be configured to support the other side of the hinge link **1130** to prevent the hinge link **1130** from moving in the Z direction relative to the main body bracket **1110**.

[0396] As an example, the first direction m**1**, which is a direction in which the hinge link **1130** is restricted from moving by the first supporter **1171**, may be opposite to the second direction m**2**, which is a direction in which the hinge link **1130** is restricted from moving by the second supporter **1172**.

[0397] In detail, the second supporter **1172** may prevent the hinge link **1130** from rotating in the second direction m**2** relative to the main body bracket **1110**. For example, the second direction m**2** may be a clockwise direction based on FIG. **19**, etc.

[0398] As an example, the second supporter **1172** may support at least a portion of the hinge link **1130** accommodated in the main body bracket **1110**, that is, the main body coupling portion **1131** on a lower side. The second supporter **1172** may prevent the main body coupling portion **1131** from moving downward and from rotating in the second direction m**2**.

[0399] The second supporter **1172** may be disposed to penetrate the main body bracket **1110**. The second supporter **1172** may penetrate the pair of side plates of the cover portion **1111** in the Y direction.

[0400] As an example, the second supporter **1172** may be composed of a rivet.

[0401] With this configuration, the hinge assembly **1100** may be configured such that the hinge link **1130** is stably supported relative to the main body bracket **1110** by including the first supporter **1171** supporting the one side of the hinge link **1130** and the second supporter **1172** supporting the other side of the hinge link **1130**.

[0402] Additionally, the hinge assembly **1100** including the first supporter **1171** and the second supporter **1172** may prevent the door **30** from deviating the designed position.

[0403] Additionally, the hinge assembly **1100** including the first supporter **1171** and the second supporter **1172** may reduce noise or vibration occurring due to the movement of the hinge link **1130** when the door **30** rotates.

[0404] Furthermore, the hinge assembly **1100** may further include the locking member **1140** configured to fix the door bracket **1120** in the position when the door **30** closes the cooking chamber **20**.

[0405] The locking member **1140** may be coupled to the hinge link **1130**. As an example, the locking member **1140** may be coupled to the hinge link **1130** by the coupling shaft **182**. In detail, the locking member **1140** may be coupled to the hinge link **1130** to be rotatable about the coupling shaft **182**.

[0406] The locking member **1140** may be supported on the main body bracket **1110**. In detail, the locking member **1140** may come into contact with the main body bracket **1110** in the X direction. Accordingly, the locking member **1140** may restrict the door bracket **1120** from moving in the X direction from a designed position when the door **30** is in the position of closing the cooking chamber **20**.

[0407] The hinge assembly **1100** may support the door **30** more stably by including the locking member **1140**.

[0408] FIG. **20** is an enlarged view of some components of the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure. FIG. **21** is an enlarged view of some components of the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0409] Components of the embodiment illustrated in FIGS. **20** and **21** that are the same as those of the embodiments illustrated in FIGS. **1** to **19** may be given the same reference numerals, and descriptions thereof may be omitted.

[0410] Referring to FIGS. **20** and **21**, the hinge assembly **1100** of the cooking apparatus **1** according to an embodiment of the present disclosure may further include a third supporter **1173** configured to support the other side of the hinge link **1130** supported by the second supporter **1172**.

[0411] The third supporter **1173** may prevent the hinge link **1130** from moving in the second direction m**2** relative to the main body bracket **1110**. The third supporter **1173** may prevent the hinge link **1130** from moving in the Z direction relative to the main body bracket **1110**.

[0412] As an example, the second direction m**2** may be the clockwise direction based on FIGS. **20** and **21**, etc.

[0413] As an example, the third supporter **1173** may support at least a portion of the hinge link **1130** accommodated in the main body bracket **1110**, that is, the main body coupling portion **1131** on the lower side. The third supporter **1173** may prevent the main body coupling portion **1131** from moving downward and from rotating in the second direction m**2**.

[0414] The third supporter **1173** may be disposed to penetrate the main body bracket **1110**. The third supporter **1173** may penetrate the pair of side plates of the cover portion **1111** in the Y direction.

[0415] As an example, the third supporter **1173** may be composed of a rivet.

[0416] As the hinge assembly **1100** further includes the third supporter **1173**, the hinge link **1130** may be more efficiently prevented from moving in the second direction m**2**.

[0417] Referring to FIG. **21**, the hinge assembly **1100** of the cooking apparatus **1** according to an embodiment of the present disclosure may further include a fourth supporter **1174** configured to support the one side of the hinge link **1130** supported by the first supporter **1171**.

[0418] The fourth supporter **1174** may prevent the hinge link **1130** from moving in the first direction m**1** relative to the main body bracket **1110**. The fourth supporter **1174** may prevent the hinge link **1130** from moving in the Z direction relative to the main body bracket **1110**.

[0419] As an example, the first direction m**1** may be the counterclockwise direction based on FIG. **21**, etc.

[0420] As an example, the fourth supporter **1174** may support at least a portion of the hinge link **1130** accommodated in the main body bracket **1110**, that is, the main body coupling portion **1131** on the upper side. The fourth supporter **1174** may prevent the main body coupling portion **1131** from moving downward and from rotating in the first direction m**1**.

[0421] The fourth supporter **1174** may be disposed to penetrate the main body bracket **1110**. The fourth supporter **1174** may penetrate the pair of side plates of the cover portion **1111** in the Y direction.

[0422] As an example, the fourth supporter **1174** may be composed of a rivet.

[0423] As the hinge assembly **1100** further includes the fourth supporter **1174**, the hinge link **1130** may be more efficiently prevented from moving in the first direction m**1**.

[0424] Unlike illustrated in FIGS. **20** and **21**, the hinge assembly **1100** of the cooking apparatus **1** according to an embodiment may not include the third supporter **1173** but may include only the fourth supporter **1174**.

[0425] FIG. **22** is an enlarged view of some components of the hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0426] Components of the embodiment illustrated in FIG. **22** that are the same as those of the embodiments illustrated in FIGS. **1** to **19** may be given the same reference numerals, and descriptions thereof may be omitted.

[0427] In particular, descriptions of the embodiment illustrated in FIG. **22**, which overlap with the embodiment illustrated in FIGS. **1** to **7**, will be omitted.

[0428] Referring to FIG. **22**, the hinge assembly **100** may include a first supporter **171** configured to support one side of the hinge link **130**. The first supporter **171** may be configured to support the one side of the hinge link **130** to prevent the hinge link **130** from moving in the first direction m**1** relative to the main body bracket **110**. The first supporter **171** may also be configured to support the one side of the hinge link **130** to prevent the hinge link **130** from moving in the Z direction relative to the main body bracket **110**.

[0429] In detail, the first supporter **171** may prevent the hinge link **130** from rotating in the first direction m**1** relative to the main body bracket **110**. For example, the first direction m**1** may be the counterclockwise direction based on FIG. **22**, etc.

[0430] As an example, the first supporter **171** may support at least a portion of the hinge link **130** accommodated in the main body bracket **110**, that is, the main body coupling portion **131** on an upper side. The first supporter **171** may prevent the main body coupling portion **131** from moving upward and from rotating in the first direction m**1**.

[0431] The hinge link **130** may include a winding portion **131***a* formed to surround at least a portion of an outer surface of the first supporter **171**. The winding portion **131***a* may be provided in the main body coupling portion **131**.

[0432] As an example, the winding portion **131***a* may be provided on an upper side of the main body coupling portion **131**. As an example, the winding portion **131***a* may be provided at the rear of the main body coupling portion **131** in the X direction.

[0433] The first supporter **171** may be disposed to penetrate the main body bracket **110**. The first supporter **171** may penetrate the pair of side plates of the cover portion **111** in the Y direction.

[0434] As an example, the first supporter **171** may be composed of a rivet.

[0435] The hinge link **130** may receive an external force to move relative to the main body bracket **110** due to various causes, such as opening and closing of the door **30**, a force from the second elastic member **160**, and an impact from the outside. In particular, as described above, a further problem may occur because a point at which the link support portion **115** and the support groove **134** are engaged with each other may also function as a rotation axis that causes the hinge link **130** to rotate in the second direction m**2** relative to the main body bracket **110**.

[0436] In order to prevent these problems, the hinge assembly **100** may include a second supporter **172** configured to support the other side of the hinge link **130**. The second supporter **172** may be configured to support the other side of the hinge link **130** to prevent the hinge link **130** from moving in the second direction m**2** different from the first direction m**1** relative to the main body bracket **110**. The second supporter **172** may also be configured to support the other side of the hinge link **130** to prevent the hinge link **130** from moving in the Z direction relative to the main body bracket **110**.

[0437] As an example, the first direction m**1**, which is a direction in which the hinge link **130** is restricted from moving by the first supporter **171**, may be opposite to the second direction m**2**, which is a direction in which the hinge link **130** is restricted from moving by the second supporter **172**.

[0438] In detail, the second supporter **172** may prevent the hinge link **130** from rotating in the second direction m**2** relative to the main body bracket **110**. For example, the second direction m**2** may be the clockwise direction based on FIG. **22**, etc.

[0439] As an example, the second supporter **172** may support at least a portion of the hinge link **130** accommodated in the main body bracket **110**, that is, the main body coupling portion **131** on a lower side. The second supporter **172** may prevent the main body coupling portion **131** from moving downward and from rotating in the second direction m**2**.

[0440] The second supporter **172** may be disposed to penetrate the main body bracket **110**. The second supporter **172** may penetrate the pair of side plates of the cover portion **111** in the Y direction.

[0441] As an example, the second supporter **172** may be composed of a rivet.

[0442] With this configuration, the hinge assembly **100** may be configured such that the hinge link **130** is stably supported relative to the main body bracket **110** by including the first supporter **171** supporting the one side of the hinge link **130** and the second supporter **172** supporting the other side of the hinge link **130**.

[0443] Additionally, the hinge assembly **100** including the first supporter **171** and the second supporter **172** may prevent the door **30** from deviating the designed position.

[0444] Additionally, the hinge assembly **100** including the first supporter **171** and the second supporter **172** may reduce noise or vibration occurring due to the movement of the hinge link **130** when the door **30** rotates.

[0445] As described with reference to FIGS. **20** and **21**, the hinge assembly **100** of FIG. **22** may also further include supporters, such as a third supporter and a fourth supporter, in addition to the first supporter **171** and the second supporter **172**.

[0446] FIG. **23** is an enlarged view of some components of a hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0447] Components of the embodiment illustrated in FIG. **23** that are the same as those of the embodiments illustrated in FIGS. **1** to **19** may be given the same reference numerals, and descriptions thereof may be omitted.

[0448] Referring to FIG. **23**, the cooking apparatus **1** according to an embodiment of the present disclosure may include a hinge assembly **2100** configured to connect the door **30** and the main body **10**.

[0449] The hinge assembly **2100** may include a main body bracket **2110** coupled to the main body **10** and a door bracket **2120** coupled to the door **30**.

[0450] The main body bracket **2110** of FIG. **23** may have features corresponding to the configuration, function, etc., of the main body bracket **110** described in the embodiments of FIGS. **1** to **16**, and a detailed description thereof will be omitted.

[0451] Similarly, the door bracket **2120** of FIG. **23** may have features corresponding to the configuration, function, etc., of the door bracket **120** described in the embodiments of FIGS. **1** to **16**, and a detailed description thereof will be omitted.

[0452] The hinge assembly **2100** may include a hinge link **2130** configured to connect the main body bracket **2110** and the door bracket **2120**. The hinge link **2130** may support the door bracket **2120** such that the door bracket **2120** is rotatable relative to the main body bracket **2110**.

[0453] At least a portion of the hinge link **2130** may be accommodated inside the main body bracket **2110**. The hinge link **2130** may penetrate a coupling hole **2112** of the main body bracket **2110**. The at least a portion of the hinge link **2130** accommodated inside the main body bracket **2110** may be covered by a cover portion **2111**.

[0454] The hinge link **2130** may include a main body coupling portion **2131** coupled to the main body bracket **2110**. The main body coupling portion **2131** may be fixed to the main body bracket **2110**. The main body coupling portion **2131** may be accommodated inside the main body bracket **2110**.

[0455] The hinge link **2130** may include a door coupling portion **2132** coupled to the door bracket **2120**. The door bracket **2120** may be coupled to the door coupling portion **2132** by the door rotation shaft **181**. The door bracket **2120** may rotate relative to the hinge link **2130** about the door rotation shaft **181**.

[0456] The hinge link **2130** may include an intermediate portion **2133** positioned between the main body coupling portion **2131** and the door coupling portion **2132**.

[0457] Hereinafter, a structure of the hinge assembly **2100** for fixing the hinge link **2130** to the main body bracket **2110** will be described in detail.

[0458] Referring to FIG. **23**, the hinge assembly **2100** may include a first supporter **2171** configured to support one side of the hinge link **2130**. The first supporter **2171** may be configured to support the one side of the hinge link **2130** to prevent the hinge link **2130** from moving in the first direction m**1** relative to the main body bracket **2110**. The first supporter **2171** may also be configured to support the one side of the hinge link **2130** to prevent the hinge link **2130** from moving in the Z direction relative to the main body bracket **2110**.

[0459] In detail, the first supporter **2171** may prevent the hinge link **2130** from rotating in the first direction m**1** relative to the main body bracket **2110**. For example, the first direction m**1** may be the counterclockwise direction based on FIG. **23**, etc.

[0460] As an example, the first supporter **2171** may support at least a portion of the hinge link **2130** accommodated in the main body bracket **2110**, that is, the main body coupling portion **2131** on an upper side. The first supporter **2171** may prevent the main body coupling portion **2131** from moving upward and from rotating in the first direction m**1**.

[0461] The first supporter **2171** may be disposed to penetrate the main body bracket **2110**. The first supporter **2171** may penetrate a pair of side plates of the cover portion **2111** in the Y direction.

[0462] As an example, the first supporter **2171** may be composed of a rivet.

[0463] The hinge link **2130** may receive an external force to move relative to the main body bracket **2110** due to various causes, such as opening and closing of the door **30**, a force from the second elastic member **160**, and an impact from the outside. In particular, as described above, a further problem may occur because a point at which a link support portion **2115** and a support groove **2134** are engaged with each other may also function as a rotation axis that causes the hinge link **2130** to rotate in the second direction m**2** relative to the main body bracket **2110**.

[0464] In order to prevent these problems, the hinge assembly **2100** may include a second supporter **2172** configured to support the other side of the hinge link **2130**. The second supporter **2172** may be configured to support the other side of the hinge link **2130** to prevent the hinge link **2130** from moving in the second direction m**2** different from the first direction m**1** relative to the main body bracket **2110**. The second supporter **2172** may also be configured to support the other side of the hinge link **2130** to prevent the hinge link **2130** from moving in the Z direction relative to the main body bracket **2110**.

[0465] As an example, the first direction m**1**, which is a direction in which the hinge link **2130** is restricted from moving by the first supporter **2171**, may be opposite to the second direction m**2**, which is a direction in which the hinge link **2130** is restricted from moving by the second supporter **2172**.

[0466] In detail, the second supporter **2172** may prevent the hinge link **2130** from rotating in the second direction m**2** relative to the main body bracket **2110**. For example, the second direction m**2** may be the clockwise direction based on FIG. **23**, etc.

[0467] As an example, the second supporter **2172** may support at least a portion of the hinge link **2130** accommodated in the main body bracket **2110**, that is, the main body coupling portion **2131** on a lower side. The second supporter **2172** may prevent the main body coupling portion **2131** from moving downward and from rotating in the second direction m**2**.

[0468] The second supporter **2172** may be disposed to penetrate the main body bracket **2110**. The second supporter **2172** may penetrate the pair of side plates of the cover portion **2111** in the Y direction.

[0469] As an example, the second supporter **2172** may be composed of a rivet.

[0470] With this configuration, the hinge assembly **2100** may be configured such that the hinge link **2130** is stably supported relative to the main body bracket **2110** by including the first supporter **2171** supporting the one side of the hinge link **2130** and the second supporter **2172** supporting the other side of the hinge link **2130**.

[0471] Additionally, the hinge assembly **2100** including the first supporter **2171** and the second supporter **2172** may prevent the door **30** from deviating the designed position.

[0472] Additionally, the hinge assembly **2100** including the first supporter **2171** and the second supporter **2172** may reduce noise or vibration occurring due to a movement of the hinge link **2130** when the door **30** rotates.

[0473] As described with reference to FIGS. **20** and **21**, the hinge assembly **2100** of FIG. **23** may also further include supporters, such as a third supporter and a fourth supporter, in addition to the first supporter **2171** and the second supporter **2172**.

[0474] Furthermore, the hinge assembly **2100** may further include a locking member **2140** configured to fix the door bracket **2120** in a position when the door **30** closes the cooking chamber **20**.

[0475] The locking member **2140** may be coupled to the hinge link **2130**. As an example, the locking member **2140** may be coupled to the hinge link **2130** by the coupling shaft **182**. In detail, the locking member **2140** may be coupled to the hinge link **2130** to be rotatable about the coupling shaft **182**.

[0476] The locking member **2140** may be supported on the main body bracket **2110**. In detail, the locking member **2140** may come into contact with the main body bracket **2110** in the X direction. Accordingly, the locking member **2140** may restrict the door bracket **2120** from moving in the X direction from a designed position when the door **30** is in the position of closing the cooking chamber **20**.

[0477] The hinge assembly **2100** may support the door **30** more stably by including the locking member **2140**.

[0478] FIG. **24** is an enlarged view of some components of a hinge assembly of the cooking apparatus according to an embodiment of the present disclosure.

[0479] Components of the embodiment illustrated in FIG. **24** that are the same as those of the embodiments illustrated in FIGS. **1** to **19** may be given the same reference numerals, and descriptions thereof may be omitted.

[0480] Referring to FIG. **24**, the cooking apparatus **1** according to an embodiment of the present disclosure may include a hinge assembly **3100** configured to connect the door **30** and the main body **10**.

[0481] The hinge assembly **3100** may include a main body bracket **3110** coupled to the main body **10** and a door bracket **3120** coupled to the door **30**.

[0482] The main body bracket **3110** of FIG. **24** may have features corresponding to the configuration, function, etc., of the main body bracket **110** described in the embodiments of FIGS. **1** to **16**, and a detailed description thereof will be omitted.

[0483] Similarly, the door bracket **3120** of FIG. **24** may have features corresponding to the configuration, function, etc., of the door bracket **120** described in the embodiments of FIGS. **1** to **16**, and a detailed description thereof will be omitted.

[0484] The hinge assembly **3100** may include a hinge link **3130** configured to connect the main body bracket **3110** and the door bracket **3120**. The hinge link **3130** may support the door bracket **3120** such that the door bracket **3120** is rotatable relative to the main body bracket **3110**.

[0485] At least a portion of the hinge link **3130** may be accommodated inside the main body bracket **3110**. The hinge link **3130** may penetrate a coupling hole **3112** of the main body bracket **3110**. The at least a portion of the hinge link **3130** accommodated inside the main body bracket **3110** may be covered by a cover portion **3111**.

[0486] The hinge link **3130** may include a main body coupling portion **3131** coupled to the main body bracket **3110**. The main body coupling portion **3131** may be fixed to the main body bracket **3110**. The main body coupling portion **3131** may be accommodated inside the main body bracket **3110**.

[0487] The hinge link **3130** may include a door coupling portion **3132** coupled to the door bracket **3120**. The door bracket **3120** may be coupled to the door coupling portion **3132** by the door rotation shaft **181**. The door bracket **3120** may rotate relative to the hinge link **3130** about the door rotation shaft **181**.

[0488] The hinge link **3130** may include an intermediate portion **3133** positioned between the main body coupling portion **3131** and the door coupling portion **3132**.

[0489] Hereinafter, a structure of the hinge assembly **3100** for fixing the hinge link **3130** to the main body bracket **3110** will be described in detail.

[0490] Referring to FIG. **24**, the hinge assembly **3100** may include a first supporter **3171** configured to support one side of the hinge link **3130**. The first supporter **3171** may be configured to support the one side of the hinge link **3130** to prevent the hinge link **3130** from moving in the first direction m**1** relative to the main body bracket **3110**. The first supporter **3171** may also be configured to support the one side of the hinge link **3130** to prevent the hinge link **3130** from moving in the Z direction relative to the main body bracket **3110**.

[0491] In detail, the first supporter **3171** may prevent the hinge link **3130** from rotating in the first direction m**1**

relative to the main body bracket **3110**. For example, the first direction m**1** may be the counterclockwise direction based on FIG. **24**, etc.

[0492] As an example, the first supporter **3171** may support at least a portion of the hinge link **3130** accommodated in the main body bracket **3110**, that is, the main body coupling portion **3131** on an upper side. The first supporter **3171** may prevent the main body coupling portion **3131** from moving upward and from rotating in the first direction m**1**.

[0493] The first supporter **3171** may be disposed to penetrate the main body bracket **3110**. The first supporter **3171** may penetrate a pair of side plates of the cover portion **3111** in the Y direction.

[0494] As an example, the first supporter **3171** may be composed of a rivet.

[0495] The hinge link **3130** may receive an external force to move relative to the main body bracket **3110** due to various causes, such as opening and closing of the door **30**, a force from the second elastic member **160**, and an impact from the outside. In particular, as described above, a further problem may occur because a point at which a link support portion **3115** and a support groove **3134** are engaged with each other may also function as a rotation axis that causes the hinge link **3130** to rotate in the second direction m**2** relative to the main body bracket **3110**.

[0496] In order to prevent these problems, the hinge assembly **3100** may include a second supporter **3172** configured to support the other side of the hinge link **3130**. The second supporter **3172** may be configured to support the other side of the hinge link **3130** to prevent the hinge link **3130** from moving in the second direction m**2** different from the first direction m**1** relative to the main body bracket **3110**. The second supporter **3172** may also be configured to support the other side of the hinge link **3130** to prevent the hinge link **3130** from moving in the Z direction relative to the main body bracket **3110**.

[0497] As an example, the first direction m**1**, which is a direction in which the hinge link **3130** is restricted from moving by the first supporter **3171**, may be opposite to the second direction m**2**, which is a direction in which the hinge link **3130** is restricted from moving by the second supporter **3172**.

[0498] In detail, the second supporter **3172** may prevent the hinge link **3130** from rotating in the second direction m**2** relative to the main body bracket **3110**. For example, the second direction m**2** may be the clockwise direction based on FIG. **24**, etc.

[0499] As an example, the second supporter **3172** may support at least a portion of the hinge link **3130** accommodated in the main body bracket **3110**, that is, the main body coupling portion **3131** on a lower side. The second supporter **3172** may prevent the main body coupling portion **3131** from moving downward and from rotating in the second direction m**2**.

[0500] The second supporter **3172** may be disposed to penetrate the main body bracket **3110**. The second supporter **3172** may penetrate the pair of side plates of the cover portion **3111** in the Y direction.

[0501] As an example, the second supporter **3172** may be composed of a rivet.

[0502] With this configuration, the hinge assembly **3100** may be configured such that the hinge link **3130** is stably supported relative to the main body bracket **3110** by including the first supporter **3171** supporting the one side of the hinge link **3130** and the second supporter **3172** supporting the other side of the hinge link **3130**.

[0503] Additionally, the hinge assembly **3100** including the first supporter **3171** and the second supporter **3172** may prevent the door **30** from deviating the designed position.

[0504] Additionally, the hinge assembly **3100** including the first supporter **3171** and the second supporter **3172** may reduce noise or vibration occurring due to a movement of the hinge link **3130** when the door **30** rotates.

[0505] As described with reference to FIGS. **20** and **21**, the hinge assembly **3100** of FIG. **24** may also further include supporters, such as a third supporter and a fourth supporter, in addition to the first supporter **3171** and the second supporter **3172**.

[0506] Furthermore, the hinge assembly **3100** may further include a locking member **3140** configured to fix the door bracket **3120** in a position when the door **30** closes the cooking chamber **20**.

[0507] The locking member **3140** may be coupled to the hinge link **3130**. As an example, the locking member **3140** may be coupled to the hinge link **3130** by the coupling shaft **182**. In detail, the locking member **3140** may be coupled to the hinge link **3130** to be rotatable about the coupling shaft **182**.

[0508] The locking member **3140** may be supported on the main body bracket **3110**. In detail, the locking member **3140** may come into contact with the main body bracket **3110** in the X direction. Accordingly, the locking member **3140** may restrict the door bracket **3120** from moving in the X direction from a designed position when the door **30** is in the position of closing the cooking chamber **20**.

[0509] The hinge assembly **3100** may support the door **30** more stably by including the locking member **3140**.

[0510] A cooking apparatus **1** according to an embodiment of the present disclosure may include a main body **10** forming a cooking chamber **20**, a door **30** configured to open and close the cooking chamber, and a hinge assembly **100** which connects the main body and the door. The hinge assembly may include a door bracket **120** coupled to the door, a main body bracket **110** coupled to the main body, a hinge link **130** which connects the door bracket and the main body bracket and support the door bracket so as to be rotatable, and a locking member **140** configured to be coupled to the hinge link and fix a position of the door bracket when the door closes the cooking chamber, the locking member including an engaging portion **142** which is engaged with and coupled to the main body bracket **110**, and a deviation prevention portion **143** provided to interfere with the door bracket **120** to prevent the engaging portion from deviating from the main body bracket. According to the present disclosure, the locking member **140** may fix the door bracket **120** in the position when the door **30** closes the cooking chamber **20**, and the hinge assembly **100** may stably support the door **30** and efficiently prevent the door **30** from deviating from a designed position.

[0511] The main body bracket **110** may include an insertion portion **114** into which at least a portion of the engaging portion is inserted. The engaging portion **142** may be engaged with and coupled to the main body bracket as at least a portion of the engaging portion is inserted into the insertion portion. According to the present disclosure, the locking member **140** may be more firmly fixed to the main body bracket **110** using the engaging portion **142**.

[0512] A distance d**1** between the door bracket **120** and the main body bracket **110** when the door closes the cooking chamber may be shorter than a distance d**2** between one end of the engaging portion **142** in a direction of being inserted into the insertion portion and one end of the deviation prevention portion **143** interfering with the door bracket. According to the present disclosure, even if the engaging portion **142** moves in a direction of deviating from the insertion portion **114**, the deviation prevention portion **143** may interfere with the door bracket **120** before the engaging portion **142** completely deviates from the insertion portion **114**.

[0513] The locking member **140** may be provided to be positioned between a first position in which the engaging portion is maximally inserted into the insertion portion and a second position in which the engaging portion moves in a direction of deviating from the insertion portion at the first position. The deviation prevention portion **143** may be provided to come into contact with the door bracket **120** when the door closes the cooking chamber and the locking member is in the second position. According to the present disclosure, even if the engaging portion **142** moves in the direction of deviating from the insertion portion **114**, the deviation prevention portion **143** may interfere with the door bracket **120** before the engaging portion **142** completely deviates from the insertion portion **114**. In addition, when the locking member **140** is in the first position, the deviation prevention portion **143** may be prevented from unnecessarily interfering with the door bracket **120**.

[0514] The deviation prevention portion **143** may extend in a direction away from the door bracket from a tip **143***e* coming into contact with the door bracket at the second position when the door closes the cooking chamber. According to the present disclosure, not only unnecessary interference between the deviation prevention portion **143** and the door bracket **120** may be prevented, but also a load applied to the deviation prevention portion **143** may be distributed.

[0515] The locking member may include a locking body **141** coupled to the hinge link. The engaging portion **142** may protrude from the locking body **141** toward an inner side of the insertion portion **114**. According to the present disclosure, the locking member **140** may be more firmly fixed to the main body bracket **110**. In addition, even if the locking member **140** moves relative to the main body bracket **110**, the engaging portion **142** may not easily deviate from the insertion portion **114**.

[0516] The locking member may include a locking body **141** coupled to the hinge link. The deviation prevention portion **143** may protrude from the locking body **141** in a direction opposite to the main body bracket. According to the present disclosure, the deviation prevention portion **143** may interfere with the door bracket **120** even when the locking member **140** rotates only a small angle about a coupling shaft **182**.

[0517] The locking member may be configured to be rotatable relative to the hinge link about the coupling shaft **182** coupled to the hinge link. According to the present disclosure, convenience in manufacturing the hinge assembly **100** may be improved.

[0518] A distance from the coupling shaft **182** to the deviation prevention portion **143** may be shorter than a distance from the coupling shaft **182** to the engaging portion **142**. According to the present disclosure, even if a length at which the deviation prevention portion **143** protrudes from the locking body **141** is not designed to be excessively long, the deviation prevention portion **143** may interfere with the door bracket **120** by moving only a short distance. Also, even if a length at which the engaging portion **142** protrudes from the locking body **141** is not designed to be excessively long, the engaging portion **142** may be efficiently prevented from deviating from the insertion portion **114**.

[0519] The deviation prevention portion **143** may include a plurality of deviation prevention portions **143***a* and **143***b* disposed to be spaced apart from each other. The locking member may include a plurality of extension portions **141***aa* and **141***ab* extending from the plurality of deviation prevention portions to the engaging portion **142**, respectively. The engaging portion **142** may connect the plurality of extension portions to each other.

[0520] The engaging portion **142-1** may include a plurality of engaging portions **142***a*-**1** and **142***b*-**1** separated from each other. The locking member **140-1** may include a plurality of extension portions **141***aa*-**1** and **141***ab*-**1** extending from the plurality of engaging portions, respectively, toward the deviation prevention portion. The deviation prevention portion **143-1** may connect the plurality of extension portions to each other.

[0521] A cooking apparatus **1** according to an embodiment of the present disclosure may include a main body **10** forming a cooking chamber **20**, a door **30** configured to open and close the cooking chamber, and a hinge assembly **100** which connects the main body and the door. The hinge assembly may include a door bracket **120** coupled to the door, a main body bracket **110** coupled to the main body, and a hinge link **130** configured to connect the door bracket and the main body bracket and support the door bracket such that the door bracket is rotatable relative to the main body bracket, and having at least a portion **131** accommodated in the main body bracket. The main body bracket **110** may include a protrusion portion **113** formed to protrude toward the at least a portion **131** of the hinge link accommodated in the main body bracket to prevent the hinge link **130** from moving. According to the present disclosure, the main body bracket **110** may prevent the hinge link **130** from moving and prevent the door from deviating from a designed position by including the protrusion portion **113**. In addition, the protrusion portion **113** may improve external quality of a product by preventing the door from deviating from the designed position.

[0522] The door bracket **120** and the main body bracket **110** may be arranged to face each other in a first direction X. The protrusion portion **113** may be provided to prevent the hinge link **130** from moving in a second direction Y orthogonal to the first direction.

[0523] The main body bracket may further include a cover portion **111** provided to cover the at least a portion **131** of the hinge link accommodated in the main body bracket. The protrusion portion **113** may protrude from the cover portion **111** and be disposed to be spaced apart from one end of the cover portion **111** on the door bracket **120** side. At least a portion of the cover portion **111** positioned between the one end of the cover portion **111** on the door bracket **120** side and the protrusion portion **113** may be spaced apart from the hinge link **130**. According to the present disclosure, in a process of coupling the hinge link **130** and the main body bracket **110**, the main body coupling portion **131** may be easily inserted into the main body bracket **110**.

[0524] The protrusion portion may include an inclined surface **113***a* extending to become close to the hinge link as the inclined surface becomes away from the door bracket. According to the present disclosure, the inclined surface **113***a* may guide a movement of the main body coupling portion **131** so that the main body coupling portion **131** may be easily inserted into the main body bracket **110** in the process of coupling the hinge link **130** and the main body bracket **110**.

[0525] The inclined surface may be a first inclined surface, and the protrusion portion may further include a second inclined surface **113***b* extending to become away from the hinge link as the second inclined surface becomes away from the door bracket, and a contact surface **113***c* provided between the first inclined surface and the second inclined surface and provided to come into contact with the hinge link. According to the present disclosure, the contact surface **113***c* may support the hinge link **130** and restrict a movement of the hinge link **130**. In addition, the contact surface **113***c* may distribute a load that the protrusion portion **113** receives from the hinge link **130**.

[0526] The protrusion portion **113** may include a pair of the protrusion portions arranged to face each other. A distance between the pair of protrusion portions **113** may correspond to a thickness of at least a portion **131** of the hinge link accommodated in the main body bracket.

[0527] The pair of protrusion portions **113** may be arranged in a left-right direction of the main body. One protrusion portion of the pair of protrusion portions may be in contact with a left side of the hinge link. The other protrusion portion of the pair of protrusion portions may be in contact with a right side of the hinge link.

[0528] A cooking apparatus **1** according to an embodiment of the present disclosure may include a main body **10** forming a cooking chamber **20**, a door **30** configured to open and close the cooking chamber, and a hinge assembly **100** which connects the main body and the door. The hinge assembly may include a door bracket **120** coupled to the door, a main body bracket **110** coupled to the main body, a hinge link **130** configured to connect the door bracket and the main body bracket and support the door bracket such that the door bracket is rotatable relative to the main body bracket, a first supporter **171** configured to support one side of the hinge link to prevent the hinge link **130** from rotating in a first direction m**1** relative to the main body bracket, and a second supporter **172** configured to support another side of the hinge link to prevent the hinge link **130** from rotating in a second direction m**2** opposite to the first direction relative to the main body bracket. According to the present disclosure, the hinge assembly **100** may be configured such that the hinge link **130** is stably supported relative to the main body bracket **110** by including the first supporter **171** and the second supporter **172**. In addition, the hinge assembly **100** may be configured to prevent noise or vibration from occurring due to a movement of the hinge link **130** when the door **30** rotates relative to the main body **10**, by including the first supporter **171** and the second supporter **172**.

[0529] At least a portion **131** of the hinge link may be provided to be accommodated in the main body bracket **110**. The main body bracket may include a link support portion **115** provided at one end of the main body bracket on the door bracket side to support a lower side of the hinge link. The first supporter **171** may support the at least a portion **131** of the hinge link accommodated in the main body bracket on an upper side. The second supporter **172** may support the at least a portion **131** of the hinge link accommodated in the main body bracket on the lower side.

[0530] According to the present disclosure, a hinge assembly of a cooking apparatus can stably support a door by including a locking member configured to fix a door bracket in a position when the door closes a cooking chamber.

[0531] According to the present disclosure, a locking member provided in the hinge assembly of the cooking apparatus can be firmly fixed to a main body bracket by including an engaging portion engaged with and coupled to the main body bracket, and efficiently prevent the door from deviating from a designed position by fixing the door bracket in the position when the door closes the cooking chamber.

[0532] According to the present disclosure, the locking member provided in the hinge assembly of the cooking apparatus can prevent the engaging portion from being separated from the main body bracket by including a deviation prevention portion provided to prevent the engaging portion from deviating from the main body bracket, and efficiently prevent the door from deviating from the designed position by fixing the door bracket in the position when the door closes the cooking chamber.

[0533] According to the present disclosure, the main body bracket provided in the hinge assembly of the cooking apparatus can prevent a hinge link from moving and prevent the door from deviating from the designed position by including a protrusion portion formed to protrude toward at least a portion of the hinge link accommodated in the main body bracket.

[0534] According to the present disclosure, the main body bracket provided in the hinge assembly of the cooking apparatus can prevent the door from deviating from the designed position relative to the main body and improve an external quality of a product by including the protrusion portion formed to protrude toward the at least a portion of the hinge link accommodated in the main body bracket.

[0535] According to the present disclosure, the hinge assembly of the cooking apparatus can be configured such that the hinge link is stably supported relative to the main body bracket by including a first supporter supporting one side of the hinge link and a second supporter supporting the other side of the hinge link.

[0536] According to the present disclosure, the hinge assembly of the cooking apparatus can prevent noise or vibration from occurring due to a movement of the hinge link when the door rotates relative to the main body by including the first supporter and the second supporter configured to prevent the hinge link from moving relative to the main body bracket.

[0537] The foregoing has illustrated and described specific embodiments. However, the scope of the present disclosure is not limited to the specific embodiments described above, and various other embodiments that may be modified or changed by those skilled in the art within the scope of not departing from the gist of the technical idea of the present disclosure specified in the claims will also fall within the scope of the present disclosure.

1. A cooking apparatus comprising:

a main body forming a cooking chamber;

a door configured to open and close the cooking chamber; and

a hinge assembly which connects the main body and the door,

wherein the hinge assembly includes:

a door bracket coupled to the door,

a main body bracket coupled to the main body,

a hinge link that connects the door bracket and the main body bracket, and supports the door bracket so as to be rotatable, and

a locking member coupled to the hinge link, and including:

an engaging portion, and

a deviation prevention portion,

wherein the locking member is configured so that, when the door is positioned to close the cooking chamber:

the engaging portion is engaged with the main body bracket to fix a position of the door bracket, and

to prevent the engaging portion from deviating from the main body bracket, the deviation prevention portion is positioned to interfere with the door bracket based on movement of the engaging portion in a direction away from the main body bracket.

2. The cooking apparatus according to claim **1**, wherein the main body bracket includes an insertion portion, and

when the door is positioned to close the cooking chamber, at least a portion of the engaging portion is inserted into the insertion portion.

3. The cooking apparatus according to claim **2**, wherein when the door is positioned to close the cooking chamber,

a distance between the door bracket and the main body bracket is shorter than a distance between an end of the engaging portion in a direction of being inserted into the insertion portion and an end of the deviation prevention portion positioned to interfere with the door bracket.

4. The cooking apparatus according to claim **2**, wherein when the door is positioned to close the cooking chamber:

the locking member is configured to be positioned between a first position in which the engaging portion is maximally inserted into the insertion portion and a second position in which the engaging portion moves in a direction away from the insertion portion, and

the deviation prevention portion is configured to come into contact with the door bracket when the locking member is in the second position.

5. The cooking apparatus according to claim **4**, wherein the deviation prevention portion extends in a direction away from a tip configured to contact the door bracket when the locking member is in the second position.

6. The cooking apparatus according to claim **2**, wherein the locking member includes a locking body coupled to the hinge link, and

the engaging portion protrudes from the locking body toward an inner side of the insertion portion.

7. The cooking apparatus according to claim **1**, wherein the locking member includes a locking body coupled to the hinge link, and

the deviation prevention portion protrudes from the locking body in the direction away from the main body bracket.

8. The cooking apparatus according to claim **1**, further comprising:

a coupling shaft coupling the locking member to the hinge link,

wherein the locking member is configured to be rotatable relative to the hinge link about the coupling shaft.

9. The cooking apparatus according to claim **8**, wherein a distance from the coupling shaft to the deviation prevention portion is shorter than a distance from the coupling shaft to the engaging portion.

10. The cooking apparatus according to claim **1**, wherein the deviation prevention portion includes a plurality of deviation prevention portions disposed to be spaced apart from each other,

the locking member includes a plurality of extension portions extending respectively from the plurality of deviation prevention portions to the engaging portion, and

the engaging portion connects the plurality of extension portions to each other.

11. The cooking apparatus according to claim **1**, wherein the engaging portion includes a plurality of engaging portions separated from each other,

the locking member includes a plurality of extension portions extending respectively from a plurality of the engaging portions, toward the deviation prevention portion, and

the deviation prevention portion connects the plurality of extension portions to each other.

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