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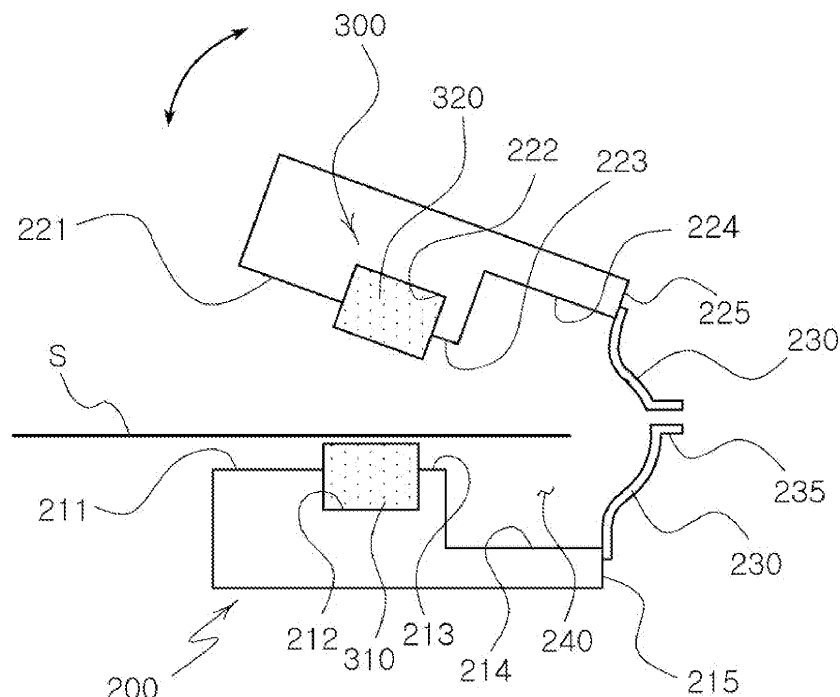
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00198 Roma (IT)**(54) **Vacuum packaging apparatus**

(57) A vacuum packaging apparatus includes a main body (110) including a vacuum pump (140); and a chamber-forming part (200) disposed in the main body (110) and having a lower chamber body (210), an upper chamber body (220) that is disposed over the lower chamber body (210), a chamber (240) that is formed between the upper chamber body (220) and the lower chamber body (210). The chamber (240) includes a rear side that is

configured to open when the upper chamber body covers the lower chamber body. The chamber (240) also includes a foldable member (230) that is configured to close the rear side of the chamber and couple the upper chamber body (220) to the lower chamber body (210) such that the upper chamber body pivots to the lower chamber body, the foldable member (230) having an intake (235) coupled to the vacuum pump (140).

[FIG. 4c]

**EP 1 970 312 A1**

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a vacuum packaging apparatus that evacuates air from a packaging bag and then seals the packaging bag by heating, particularly a vacuum packaging apparatus that has a small chamber, secures vacuum-packaging, and minimizes waste of a packaging bag, by closing the rear of the chamber with a foldable part.

2. Description of the Related Art

[0002] Vacuum packaging apparatuses are packaging apparatuses that are used to store an object to vacuum-process, such as food, over a long period of time while preventing oxidization of the food by putting the food inside a packaging bag, evacuating the inside air, and then sealing the packaging bag. Although, it is possible to prevent food from spoiling by keeping the food at low temperature using a refrigerator, the food can be stored over a longer period of time by vacuum-packaging the food to prevent air from contacting the food.

[0003] FIG. 1 is a perspective view of a common vacuum packaging apparatus.

[0004] As shown in FIG. 1, a common vacuum packaging apparatus includes a body 10 equipped with a variety of components, such as a vacuum pump, etc. (not shown), and a cover 20 hinged to the body 10 to open/close the upper side of the body 10.

[0005] The body 10 includes a lower sealing member 12 disposed around a lower chamber part 11 that is formed in the left-to-right direction, an air intake 13 formed inside the lower chamber part 11, a vacuum pump (not shown) connected with the air intake 13 and sucking up air, and a heating means 14 disposed in the left-to-right direction in front of the lower chamber part 11 and sealing a packaging bag by heating.

[0006] The cover 20 has an upper sealing member 22 that is disposed corresponding to the lower sealing member 12 and creates a vacuum space by sealing the lower chamber part 11 when the upper side of the body 10 is closed by the cover 20 and a pressing member 23 that is disposed corresponding to the heating member 14 and presses the heating member 14. An upper chamber part 21 that is recessed may be formed on the lower side of the cover 20, where the upper sealing member 22 is disposed, in the left-to-right direction, corresponding to the lower chamber part 11.

[0007] The operation of a common vacuum packaging apparatus having the above configuration is as follows.

[0008] First, a user puts an object 40 to vacuum-package into a packaging bag 30, places an opening 31 of the packaging bag 30 at the lower chamber part 11 of the body 10, and then contacts the upper sealing member

22 to the lower sealing member 12 by pivoting the cover 20. As a result, the space between the lower chamber part 11 and/or the upper chamber part 21 becomes airtight.

[0009] Under this condition, when a predetermined operation switch 15 is pushed, the vacuum pump (not shown) is actuated, and as the vacuum pump operates, the air in the closed space formed by the lower chamber part 11 and the upper chamber part 21 is sucked into the air intake 13. Accordingly, the lower chamber part 11 forms a vacuum, such that the air in the packaging bag 30 is exhausted through the opening 31 of the packaging bag 30 at the lower chamber part 11.

[0010] After the vacuum process for the inside of the packaging bag 30 is completed as described above, power is applied to the heating member 14 while the pressing member 23 presses the heating member 14, resulting in the opening 31 of the packaging bag 30 to be sealed by heat fusion.

[0011] However, according to the vacuum packaging apparatus in the related art, when the cover 20 is closed, a closed space is defined between the upper sealing member 22 and the lower sealing member 12, i.e. the lower chamber part 11 and the upper chamber part 21; therefore, it is required to position the packaging bag 30 exactly in the lower chamber part 11.

[0012] When the packaging bag 30 is not exactly positioned in the lower chamber part 11 formed by the lower sealing member 12 and a portion of the packaging bag 30 extends beyond the lower chamber part 11, the packaging bag 30 is unable to completely evacuate.

[0013] In order to overcome the above problems, in the vacuum packaging apparatus in the related art, the lower chamber part 11 and/or the upper chamber part 21 are formed to have a predetermined width in the front-to-rear direction. That is, the chamber parts 11, 21 are formed wide such that a user is able to put the packaging bag between the chamber parts 11, 21 without any problems.

[0014] However, this configuration has additional problems.

[0015] First, the wider the chamber parts 11, 21, the more the distance between the opening 31 of the packaging bag 30 and the heat-fused portion by the heating means 14 increases, such that the user has to cut more of the sealed portion to reuse the packaging bag 30. This means that the user has to re-form the opening 31 by cutting the heat-fused sealing line to reuse the packaging bag 30, but the user has to cut more the portion including the opening 31 of the packaging bag 30 when the chamber parts 11, 21 are widened as described above, which increases waste of the packaging bag 30.

[0016] Second, when the chamber parts 11, 21 increase in width, the spaces for the chamber parts 11, 21 are also increased, such that the vacuum packaging apparatus more protrudes forward. To be more detailed, in a common vacuum packaging apparatus, few components for vacuum packing are disposed in the lower

space of the body 10 where the chamber parts 11, 21 and the heating member 14 are provided. However, in the related art, since the unnecessary space increases with increase in width of the chamber parts 11, 21, the vacuum packaging apparatus increases in length and more space is needed to install the vacuum packaging apparatus.

[0017] On the other hand, in a common vacuum packaging apparatus, necessary components for vacuum process in the chamber parts 11, 21, such as the vacuum pump (not shown), are mostly disposed in the body 10 and the lower chamber part 11 is recessed down at the upper side of the body 10.

[0018] Accordingly, the air intake 13 has to be formed at the lower side of the lower chamber part 11 in a vacuum packaging apparatus in the related art, such that when food with water is vacuum-packed, the water may flow out of the packaging bag 30 to the lower chamber part 11 and then flow into the air intake 13.

[0019] In this case, the components, such as the vacuum pump (not shown), may be damaged and other problems, such as accidents relating to safety including an electric shock, may occur.

SUMMARY OF THE INVENTION

[0020] Accordingly, in order to overcome at least a part of the above problems, according to an aspect of the invention, it is an object of the present invention to provide a vacuum packaging apparatus that allows a user to be able to easily place a packaging bag at a desired position to seal the packaging bag under vacuum while minimizing the size of the chamber, thereby minimizing waste of the packaging bag.

[0021] Further, according to another aspect of the invention, it is another object of the invention to provide a compact vacuum packaging apparatus having a chamber that is small in the front-to-rear direction by minimizing the chamber.

[0022] Further, according to another aspect of the invention, it is another object of the invention to provide a vacuum packaging apparatus that can obviate damage to a vacuum pump or an accident, such as an electric shock, due to water flowing in a chamber from a packaging bag.

[0023] Further, according to another aspect of the invention, it is another object of the invention to provide a vacuum packaging apparatus that can securely and safely seal the chamber.

[0024] In order to achieve the objects of the invention, a vacuum packaging apparatus includes: a main body including a vacuum pump; and a chamber-forming part disposed in the main body and having a lower chamber body, an upper chamber body that is disposed over the lower chamber body, a chamber that is formed to have a predetermined size between the upper chamber body and the lower chamber body and has the rear open, when the upper chamber body covers the lower chamber body,

and a foldable member that closes the rear of the chamber, connects the upper chamber body with the lower chamber body such that the upper chamber body pivots to the lower chamber body, and has an intake connected with the vacuum pump.

[0025] Preferably, the lower chamber body has a lower seat where a packaging bag is placed, a lower chamber surface that is recessed at the rear portion of lower seat as a portion of the chamber, and a lower end that is formed at the rear end of the lower chamber surface, below the lower seat. Further, the upper chamber body has an upper seat that is formed to face the lower seat, an upper chamber surface that is recessed at the rear portion of the upper seat as a portion of the chamber, and an upper end that is formed at the rear end of the upper chamber surface, above the upper seat. Furthermore, the foldable member may connect the lower end with the upper end.

[0026] Further, preferably, at least one of the lower end and the upper end may protrude toward the center of the chamber.

[0027] Further, the vacuum packaging apparatus according to the invention may further include a sealing member disposed at the front portion and both sides of the chamber to seal the chamber.

[0028] Further, preferably, the sealing member may include a lower sealing member disposed in the lower chamber body and an upper sealing member disposed in the upper chamber body.

[0029] Further, preferably, the sealing member further includes an intermediate sealing member disposed at a connecting portion of the lower sealing member and the upper sealing member. In addition, the lower sealing member, the upper sealing member, and the intermediate sealing member may be integrally formed.

[0030] Further, preferably, the sealing member further includes an intermediate sealing member disposed at a connecting portion of the lower sealing member and the upper sealing member, and the intermediate sealing member may be larger in thickness or width than the lower sealing member and the upper sealing member.

[0031] Preferably, the sealing member may be disposed in sealing member seats formed on the lower chamber body and the upper chamber body.

[0032] Further, the chamber-forming part may further include hinges provided at both sides of the lower chamber body and the upper chamber body such that the upper chamber body is pivotably connected with the lower chamber body, and it is preferable that the foldable member is between the hinges.

[0033] Preferably, the lower chamber body, the upper chamber body, and the foldable member may be individual parts.

[0034] More preferably, the foldable member is fixed to the lower end and the upper end and may be formed of an elastic member.

[0035] Further, preferably, the lower chamber body, the upper chamber body, and the foldable member may

be integrally formed.

[0036] In this configuration, it is preferable that the lower chamber body and the upper chamber body may gradually decrease in thickness toward the foldable member.

[0037] Further, the main body may include a body provided with the chamber-forming part and a cover pivoting to cover the body, and the upper chamber body may be closed by the cover pivoting.

[0038] Preferably, the chamber-forming part is separable from the main body.

[0039] Further, preferably, the lower chamber body may have a heating means disposed at the rear portion of the chamber to seal a packaging bag by heating and the upper chamber body may have a pressing member disposed on the lower side of the upper chamber body to press the packaging bag against the heating means.

BRIEF DESCRIPTION OF THE DRAWINGS

[0040]

FIG. 1 is a schematic view of a common vacuum packaging apparatus;

FIG. 2 is an exploded perspective view showing main parts of a vacuum packaging apparatus according to an embodiment of the invention;

FIG. 3 is a vertical cross-sectional view showing the center portion of the vacuum packaging apparatus shown in FIG. 2 that is closed;

FIG. 4A is a perspective view of a chamber-forming part according to an embodiment of the invention;

FIG. 4B is an exploded perspective view showing a sealing member of the chamber-forming part shown in FIG. 4A;

FIG. 4C is a vertical cross-sectional view of the chamber-forming part shown in FIG. 4A;

FIG. 5 is a cross-sectional view of a chamber-forming part according to another embodiment of the invention;

FIG. 6A is a perspective view of a chamber-forming part according to another embodiment of the invention;

FIG. 6B is a vertical cross-sectional view showing the chamber-forming part when the chamber shown in FIG. 6A is open;

FIG. 6C is a vertical cross-sectional view showing the chamber-forming part when the chamber shown in FIG. 6A is closed;

FIG. 7 is a vertical cross-sectional view of a chamber-forming part according to another embodiment of the invention; and

FIG. 8 is a vertical cross-sectional view of a chamber-forming part according to another embodiment of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0041] Preferred embodiments of the invention are de-

scribed hereafter in detail with accompanying drawings.

[0042] FIG. 2 is an exploded perspective view showing main parts of a vacuum packaging apparatus according to an embodiment of the invention and FIG. 3 is a vertical cross-sectional view showing the center portion of the vacuum packaging apparatus shown in FIG. 2 that is closed.

[0043] Referring to FIGS. 2 and 3, a vacuum packaging apparatus 100 according to an embodiment of the invention includes a main body 110 including a vacuum pump 140 and a chamber-forming part 200 having a chamber 240 and disposed in the main body 110. The vacuum packaging apparatus 100 may further include a sealing member 300 disposed at the front portion and both sides of the chamber 240 for sealing of the chamber 240.

[0044] The main body 110 may have a body 120 equipped with a variety of components, such as the vacuum pump 140, and a cover 130 pivotably hinged to the body 120 to open/close the upper side of the body 120.

[0045] A recessed seating groove 121 is formed in the left-to-right direction on the upper side of the body 120 to seat the chamber-forming part 200 and a heating means 122 that seals a packaging bag by heating is provided in the left-to-right direction in front of the seating groove 121.

[0046] Further, the cover 130 has a pressing member 132 that is disposed corresponding to the heating means 122 and descends and presses the heating means 122 and a receiving groove 131 that is recessed to receive the upper part of the chamber-forming part 200.

[0047] Further, it is possible to start vacuum packing process using a protrusion 133 that is provided to the cover 130 such that the protrusion 133 pushes a switch 123 as the cover 130 descends and contacts with the upper side of the body 120, but the invention is not limited thereto. For example, as shown in FIG. 1, it may be possible to start vacuum packing process using a separate switch 15 provided on the outside of the body 10.

[0048] Continuing with FIGS. 2 and 3, the chamber-forming part 200 is disposed in a space between the seating groove 121 of the body 120 and the receiving groove 131 of the cover 130 and has a lower chamber body 210 that is seated on the seating groove 121, an upper chamber body 220 that is disposed over the lower body 210, the chamber 240 that is formed in a predetermined size between the upper chamber body 220 and the lower chamber body 210 and of which the rear is open when the upper chamber body 220 covers the lower chamber body 210, and a foldable member 230 that closes the rear of the chamber 240 and connects the upper chamber body 220 and the lower chamber body 210 such that the upper chamber body 220 is capable of pivoting to the lower chamber body 210.

[0049] The chamber 240, as shown in FIG. 3, may be formed by a lower chamber surface 214 that is recessed at the rear portion of the lower chamber body 210 and an upper chamber surface 224 that is recessed at the rear portion of the upper chamber body 220, but the

shape is not limited thereto as long as it is possible to form a predetermined space with the rear open. Further, the foldable member 230 is provided with an intake 235 connected to the vacuum pump 140 and the intake 235 is connected to a hose 141 connected with the vacuum pump 140, through an intake port 236 provided in the body 120.

[0050] Further, the heating means 122 and the pressing member 132 are respectively provided to the body 120 and the cover 130 in FIGS. 2 and 3, but as shown in FIGS. 7 and 8, they may be provided at the lower chamber body 210 and the upper chamber body 220, respectively.

[0051] In order to seal the chamber 240 and complete the vacuum packing process at the same time, it is preferable that to seal the chamber 240 by the upper chamber body 220 that pivots to the lower chamber body 210 while being in contact with the cover 130, when the cover 130 closes. However, the invention is not limited to this configuration, it may be possible to form the closed chamber 240 by moving the upper chamber body 220 before closing the cover 130.

[0052] Therefore, with the packaging bag placed in the chamber 240, when the upper chamber body 220 pivots and contacts with the lower chamber body 210, the chamber 240 is sealed by a sealing member 300 provided along the edge of the chamber 240. Subsequently, when the vacuum pump 140 is actuated, the pressure is decreased in the chamber 240 by a suction force of the vacuum pump 140 and vacuum process is applied to the packaging bag (not shown) in the chamber 240.

[0053] In particular, the vacuum packaging apparatus 100 according to an embodiment of the invention has the advantage of securely positioning the packaging bag (not shown) inside the chamber 240 because when being inserted into the chamber 240, the packaging bag (not shown) reaches the foldable member 230 at the rear of the chamber 240 and cannot be inserted further. Therefore, it is possible to easily position the packaging bag and minimizes the front-to-rear directional size of the chamber 240. In detail, according to the vacuum packaging apparatus shown in FIG. 1, a packaging bag that is inserted is not restricted, such that it is required to secure a sufficiently large front-to-rear directional size for the chamber parts 11, 21 to prevent the packaging bag from passing through the chamber parts 11, 21; however, the vacuum packaging apparatus 100 according to an embodiment of the invention can overcome the problem. Therefore, according to the vacuum packaging apparatus of an embodiment of the invention having the chamber-forming part 200 having the above configuration, it is possible to reduce the longitudinal size of the chamber 240 as compared with the related art, such that it is possible to minimize waste of the packaging bag in reusing the packaging bag and also achieves a compact vacuum packaging apparatus.

[0054] Further, as shown in FIG. 2, it is preferable that the chamber-forming part 200 is separable from the main

body 120 to wash the chamber-forming part 200.

[0055] A chamber-forming part according to an embodiment of the invention is described hereafter with reference to FIGS. 4A to 4C.

[0056] FIG. 4A is a perspective view of a chamber-forming part according to an embodiment of the invention, FIG. 4B is an exploded perspective view showing a sealing member of the chamber-forming part shown in FIG. 4A, and FIG. 4C is a vertical cross-sectional view of the chamber-forming part shown in FIG. 4A.

[0057] Referring to FIGS. 4A to 4C, a chamber-forming part 200 of a vacuum packaging apparatus according to an embodiment of the invention has a lower chamber body 210 that is disposed in the main body (110 in FIG. 2), an upper chamber body 220 disposed over the lower chamber body 210, a chamber 240 with the rear open, which is formed between the lower chamber body 210 and the upper chamber body 220, and a foldable member 230 that closes the rear of the chamber 240 and allows the upper chamber body 220 to pivot to the lower chamber body 210. The lower chamber body 210, upper chamber body 220, and foldable member 230 may be separately formed as shown in FIGS. 4A to 4C, but may be integrally formed as shown in FIG. 6.

[0058] As shown in FIGS. 4A to 4C, the lower chamber body 210 may have a lower seat 211 where a packaging bag S is placed, a lower chamber surface 214 that is recessed at the rear portion of the lower seat 211 as a portion of the chamber 240, and a lower end 215 that is formed at the rear end of the lower chamber surface 214, below the lower seat 211. Further, the upper chamber body 220 has an upper seat 221 that is formed to face the lower seat 211, an upper chamber surface 224 that is recessed at the rear portion of the upper seat 221 as a portion of the chamber 240, and an upper end 225 that is formed at the rear end of the upper chamber surface 224, above the upper seat 221, and the foldable member 230 connects the lower end 215 with the upper end 225. It is preferable that the foldable member 230 is made of an elastic deformable material so that the upper chamber body 220 can be pivoted by the foldable member 230. For example, the foldable member 230 may be formed of rubber or vinyl, etc. to seal the rear of the chamber 240 even while the foldable member 230 is deformed.

[0059] Further, the chamber 240 is formed by the upper and lower chamber surfaces 214, 224 that are recessed on the upper chamber body 220 and the lower chamber body 210 in FIGS. 4A to 4C, but it may be possible to form one of the recessed chamber surfaces 214, 224 on only one of the upper chamber body 220 and the lower chamber body 210 to form the chamber 240.

[0060] Further, as shown in FIGS. 4A to 4C, the vacuum packaging apparatus according to an embodiment of the invention may include a sealing member 300 that is disposed at the front portion and both sides of the chamber 240 to seal the chamber 240.

[0061] Referring to FIGS. 4B and 4C, the sealing member 300 is composed of a lower sealing member 310

disposed on the lower chamber body 210, an upper sealing member 320 disposed on the upper chamber body 220, and an intermediate sealing member 330 disposed at the joint of the lower sealing member 310 and the upper sealing member 320. According to this configuration, as shown in FIG. 4B, it is preferable to integrally form the lower sealing member 310, upper sealing member 320, and intermediate sealing member 330 for the convenience in manufacturing, but it is not limited thereto and may be formed from separate parts overlapping.

[0062] Further, as shown in FIG. 4B, it is preferable for the intermediate sealing member 330 to have a larger thickness or width than the lower sealing member 310 and the upper sealing member 320 to ensure sealing at both ends of the foldable member 230.

[0063] Accordingly, by increasing the thickness or width of the intermediate sealing member 330, it is possible to keep the front of the chamber 240 open while the upper seat 221 of the upper chamber body 220 is not in contact with the lower seat 211 of the lower chamber body 210 by the elastic force of the intermediate sealing member 330 when an external force is not applied.

[0064] Further, the sealing member 300 may be bonded to the upper chamber body 220 and/or the lower chamber body 210, but preferably fitted in sealing member seats 212, 222 that are recessed or protrude on the upper chamber body 220 and/or the lower chamber body 210 in consideration of convenience in mounting and replacing. According to this configuration, projections 213, 223 are formed between the sealing member seats 212, 222 and the upper and lower chamber surfaces 214, 224 by difference in height, and form the front of the chamber 240.

[0065] In FIGS. 4A and 4B, the upper sealing member 320 is connected to the lower sealing member 310 through the intermediate sealing member 330, but the upper and lower sealing members 310, 320 that are separate may be used to close the chamber 240, without using the intermediate sealing member 330. It is preferable in this configuration that the separate upper and lower sealing members 310, 320 overlap around the foldable member 230 to secure sealing at both ends of the foldable member 230.

[0066] Further, as shown in FIGS. 4A and 4B, the chamber-forming part 200 may be provided with hinges 260 at both sides of the lower chamber body 210 and the upper chamber body 220 to make the lower chamber body 210 and the upper chamber body 220 smoothly pivot, in which the foldable member 230 is between the foldable member 230 and the hinges 260 and the space between the hinges 260 and the foldable member 230 is sealed by the sealing member 300.

[0067] FIG. 5 is a vertical cross-sectional view of a chamber-forming part 200 having a configuration similar to that shown in FIGS. 4A to 4C. The chamber-forming part 200 shown in FIG. 5 has the same shape as that shown in FIG. 4C, except that a lower end 215 of a lower chamber body 210 and an upper end 225 of an upper

chamber body 220 each protrude toward the center of a chamber 240.

[0068] According to the chamber-forming 200 shown in FIG. 5, at least one of the lower end 215 and the upper end 225 protrudes toward the center of the chamber 240, such that it is possible to increase the contact area of a foldable member 230 and the lower chamber body 210 and/or the upper chamber body 220. Therefore, adhesion between the foldable member 230 and the lower chamber body 210 and/or the upper chamber body 220 is facilitated and it is possible to ensure a sufficient adhesive force.

[0069] A chamber-forming part according to another embodiment of the invention is described hereafter with reference to FIGS. 6A to 6C. FIG. 6A is a perspective view of a chamber-forming part according to another embodiment of the invention, FIG. 6B is a vertical cross-sectional view showing the chamber-forming part when the chamber shown in FIG. 6A is open, and FIG. 6C is a vertical cross-sectional view showing the chamber-forming part when the chamber shown in FIG. 6A is closed. The chamber-forming part 200 shown in FIGS. 6A to 6C has a structure similar to the chamber-forming part shown in FIGS. 4A to 4C, except that it is an integral part. The same or similar configuration is not described below to avoid repetition.

[0070] Referring to FIGS. 6A to 6C, the chamber-forming part 200 may have a lower chamber body 210, an upper chamber body 220, and a foldable member 230 that are integrally formed. The foldable member 230 may be formed as a foldable cover lock of a plastic vessel by making the thickness relatively small.

[0071] According to this configuration, it is preferable to gradually decrease the thickness of the lower chamber body 210 and the upper chamber body 220 toward the foldable member 230 to fold smoothly the foldable member 220 while reducing the thickness. That is, the lower chamber body 210 gradually decreases in thickness from the start portion of a lower end 215 following a lower chamber surface 214 and has substantially the same thickness as the foldable member 230 at connecting portion with the foldable member 230. Similarly, an upper end 225 of the upper chamber body 220 also gradually decreases in thickness and has substantially the same thickness as the foldable member 230 at the connection portion with the foldable member 230. Accordingly, it is easy to manufacture the chamber-forming part 200 by integrally forming the lower chamber body 210, upper chamber body 220, and foldable member 230. Further, because the rear portion of the chamber 240 is hermetically sealed by the foldable member 230, it is possible to improve sealing effect.

[0072] A chamber-forming part 200 according to another embodiment of the invention is described hereafter with reference to FIGS. 7 and 8. The chamber-forming part 200 shown in FIGS. 7 and 8 has basically similar configuration with the chamber-forming parts 200 shown in FIGS. 4C to 6B, except that it is provided with a heating

means 250 and a pressing member 270.

[0073] As shown in FIGS. 7 and 8, a lower chamber body 210 may have the heating means 250 that is disposed in a lower seat 211 to seal a packaging bag by heating and an upper chamber body 220 may have the pressing member 270 that is disposed in an upper seat 221 to press the packaging bag against the heating means 250. That is, the heating means 122 and the pressing member 132 shown in FIGS. 2 and 3 may be mounted in the chamber-forming body 200, not in the main body 110 of the vacuum packaging apparatus. According to this configuration, the chamber 240 is very close to the heating member 250, such that it is possible to achieve a compact vacuum packaging apparatus that minimizes waste of a packaging bag in cutting the sealed portion of the sealed packaging bag for reuse.

[0074] As described above, according to an aspect of the invention, since the rear of the chamber is closed by the foldable member, it is easy to place a packaging bag at a desired position inside the chamber and it is possible to minimize the size of the chamber. Therefore, the length of the chamber in the left-to-right direction is decreased, such that it is possible to minimize waste of a packaging bag in reusing the packaging bag, but achieve a compact vacuum packaging apparatus.

[0075] Further, according to another aspect of the invention, the intake is provided, not at the bottom of the chamber, but to the foldable member at the rear portion of the chamber, such that it is possible to minimize foreign substances flowing into the intake, such as water, and prevent damage to the vacuum pump and obviate an accident such as an electric shock.

[0076] Further, according to another aspect of the invention, it is possible to achieve a compact vacuum pump by providing the heating means and the pressing member in the lower chamber body and the upper chamber body, respectively.

[0077] Although the present invention has been illustrated and described with reference to specific embodiments, those skilled in the art will appreciate that various modifications and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

Claims

1. A vacuum packaging apparatus comprising:

a main body including a vacuum pump; and
a chamber-forming part disposed in the main body and having a lower chamber body, an upper chamber body that is disposed over the lower chamber body, a chamber that is formed between the upper chamber body and the lower chamber body,

wherein the chamber includes:

a rear side that is configured to open when the upper chamber body covers the lower chamber body, and

a foldable member that is configured to close the rear side of the chamber and couple the upper chamber body to the lower chamber body such that the upper chamber body pivots to the lower chamber body, the foldable member having an intake coupled to the vacuum pump.

2. The vacuum packaging apparatus of claim 1, wherein the lower chamber body has a lower seat configured to receive a packaging bag, a lower chamber surface that is recessed at a rear portion of lower seat as a portion of the chamber, and a lower end that is formed at a rear end of the lower chamber surface, below the lower seat, the upper chamber body has an upper seat that is formed to face the lower seat, an upper chamber surface that is recessed at a rear portion of the upper seat as a portion of the chamber, and an upper end that is formed at a rear end of the upper chamber surface, above the upper seat, and the foldable member is configured to connect the lower end with the upper end.

3. The vacuum packaging apparatus of claim 2, wherein the lower end or the upper end, or both protrude toward the center of the chamber.

4. The vacuum packaging apparatus of claim 1, further comprising:

a sealing member disposed at a front portion and first and second sides of the chamber to seal the chamber.

5. The vacuum packaging apparatus of claim 4, wherein the sealing member includes a lower sealing member disposed in the lower chamber body and an upper sealing member disposed in the upper chamber body.

6. The vacuum packaging apparatus of claim 5, wherein the sealing member further includes an intermediate sealing member disposed at a connecting portion of the lower sealing member and the upper sealing member, and the lower sealing member, the upper sealing member, and the intermediate sealing member are integrally formed.

7. The vacuum packaging apparatus of claim 5, wherein the sealing member further includes an intermediate sealing member disposed between the lower sealing member and the upper sealing member,

the intermediate sealing member is thicker and

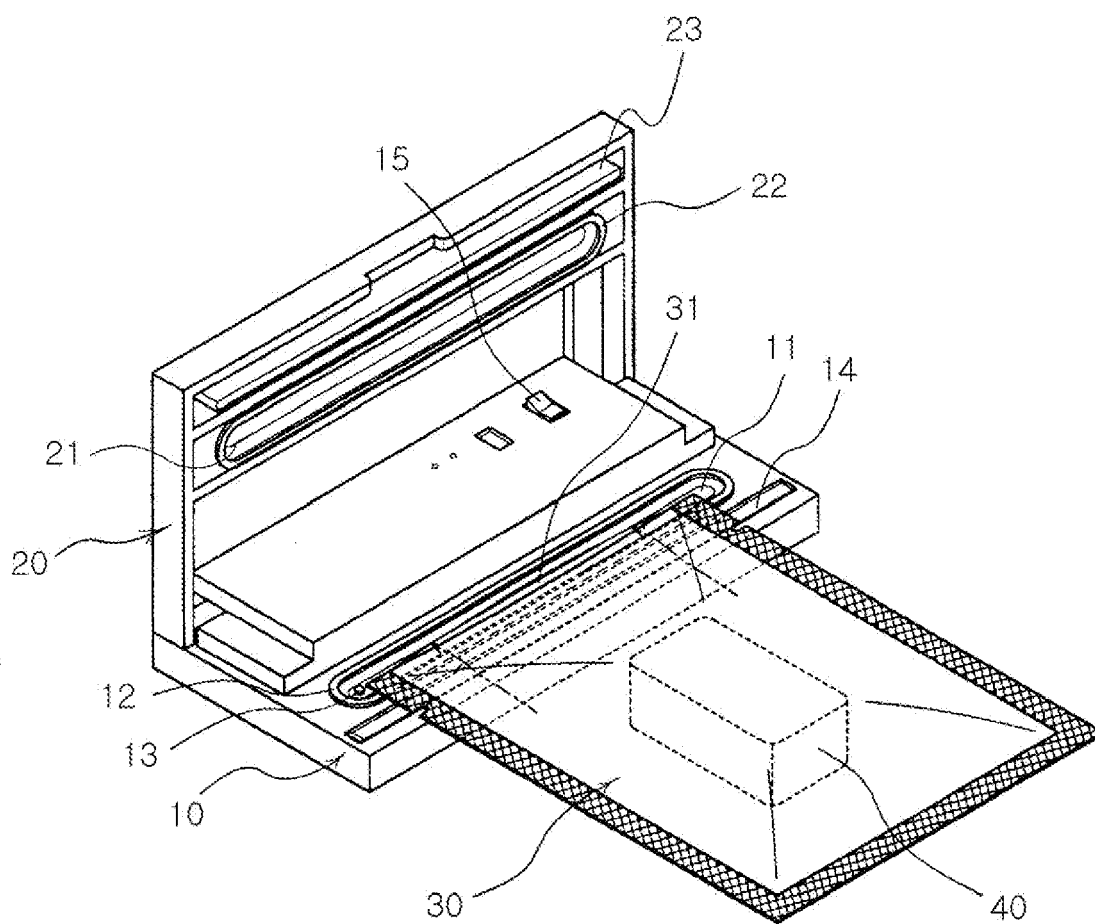
wider than the lower sealing member, and the intermediate sealing member is thicker and wider than the upper sealing member.

8. The vacuum packaging apparatus of claim 5, where- 5
in the sealing member is disposed in sealing member
seats formed on the lower chamber body and the
upper chamber body.
9. The vacuum packaging apparatus of claim 1, where- 10
in the chamber-forming part further includes hinges
provided at sides of the lower chamber body and the
upper chamber body such that the upper chamber
body is pivotably joined to the lower chamber body,
and 15

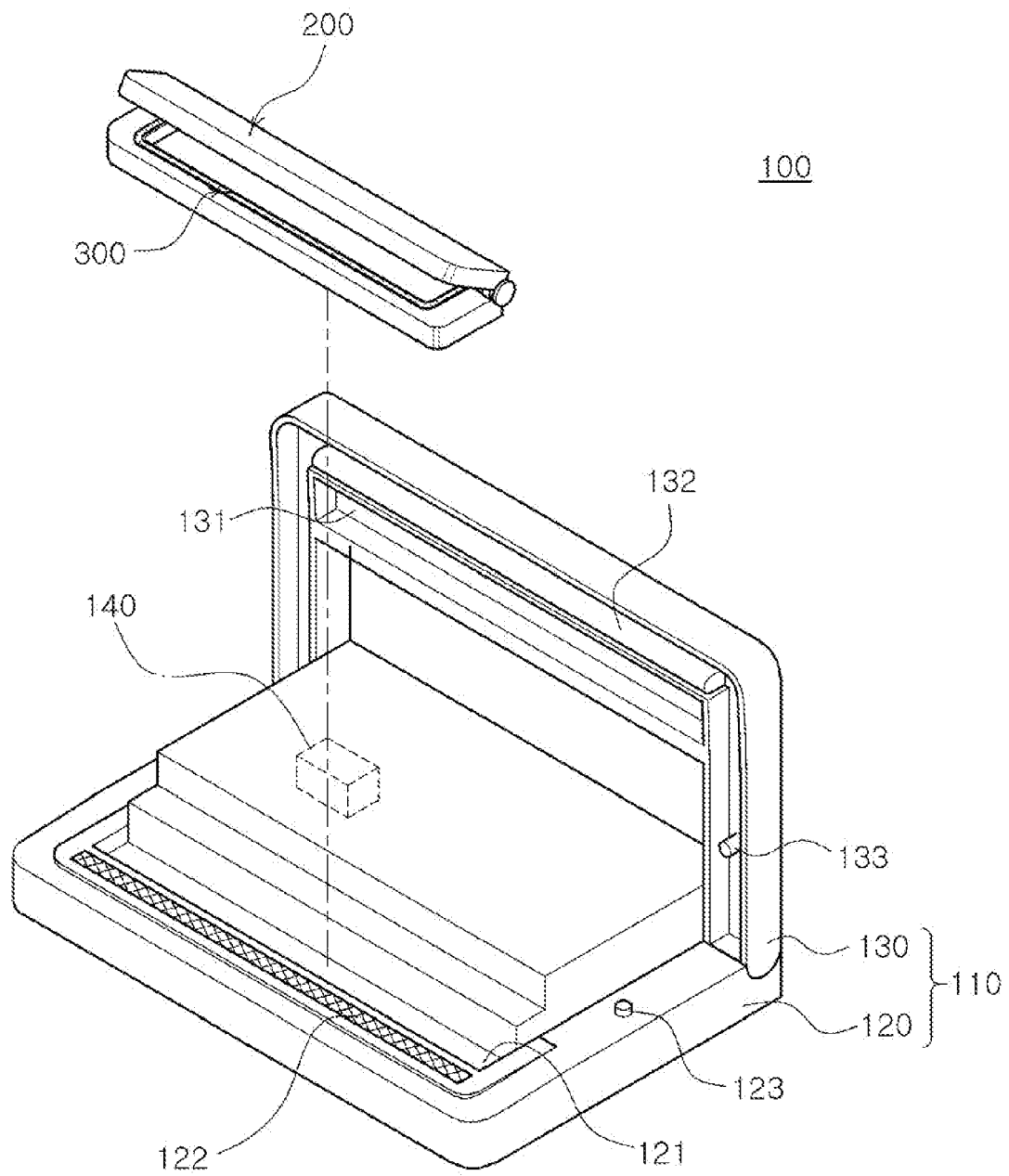
the foldable member is provided between the
hinges.
10. The vacuum packaging apparatus of claim 1, where- 20
in the lower chamber body, the upper chamber body,
and the foldable member are individual parts.
11. The vacuum packaging apparatus of claim 10, 25
wherein the foldable member is fixed to a first end
of the lower chamber body and a second end of the
upper chamber body, the foldable member being
formed of an elastic member.
12. The vacuum packaging apparatus of claim 1, where- 30
in the lower chamber body, the upper chamber body,
and the foldable member are integrally formed.
13. The vacuum packaging apparatus of claim 12, 35
wherein the lower chamber body and the upper
chamber body gradually decrease in thickness to-
ward the foldable member.
14. The vacuum packaging apparatus of claim 1, where- 40
in the main body includes a body provided with the
chamber-forming part and a cover pivoting to cover
the body, and

the upper chamber body is configured to be
closed by the cover pivoting. 45
15. The vacuum packaging apparatus of claim 1, where- 50
in the chamber-forming part is separable from the
main body.
16. The vacuum packaging apparatus of claim 1, where- 55
in the lower chamber body has a heating unit dis-
posed at the rear portion of the chamber to seal a
packaging bag by heating, and the upper chamber
body has a pressing member disposed on the lower
side of the upper chamber body to press the pack-
aging bag against the heating unit.

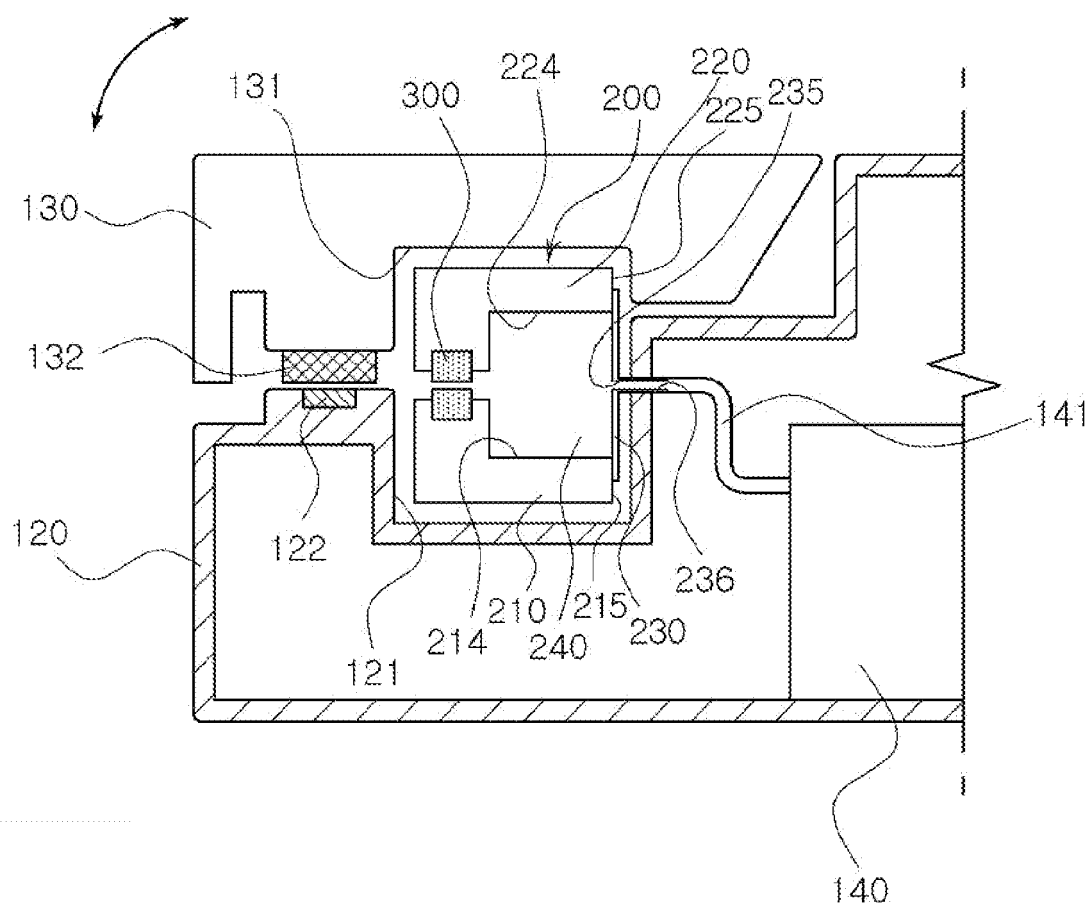
[FIG. 1]



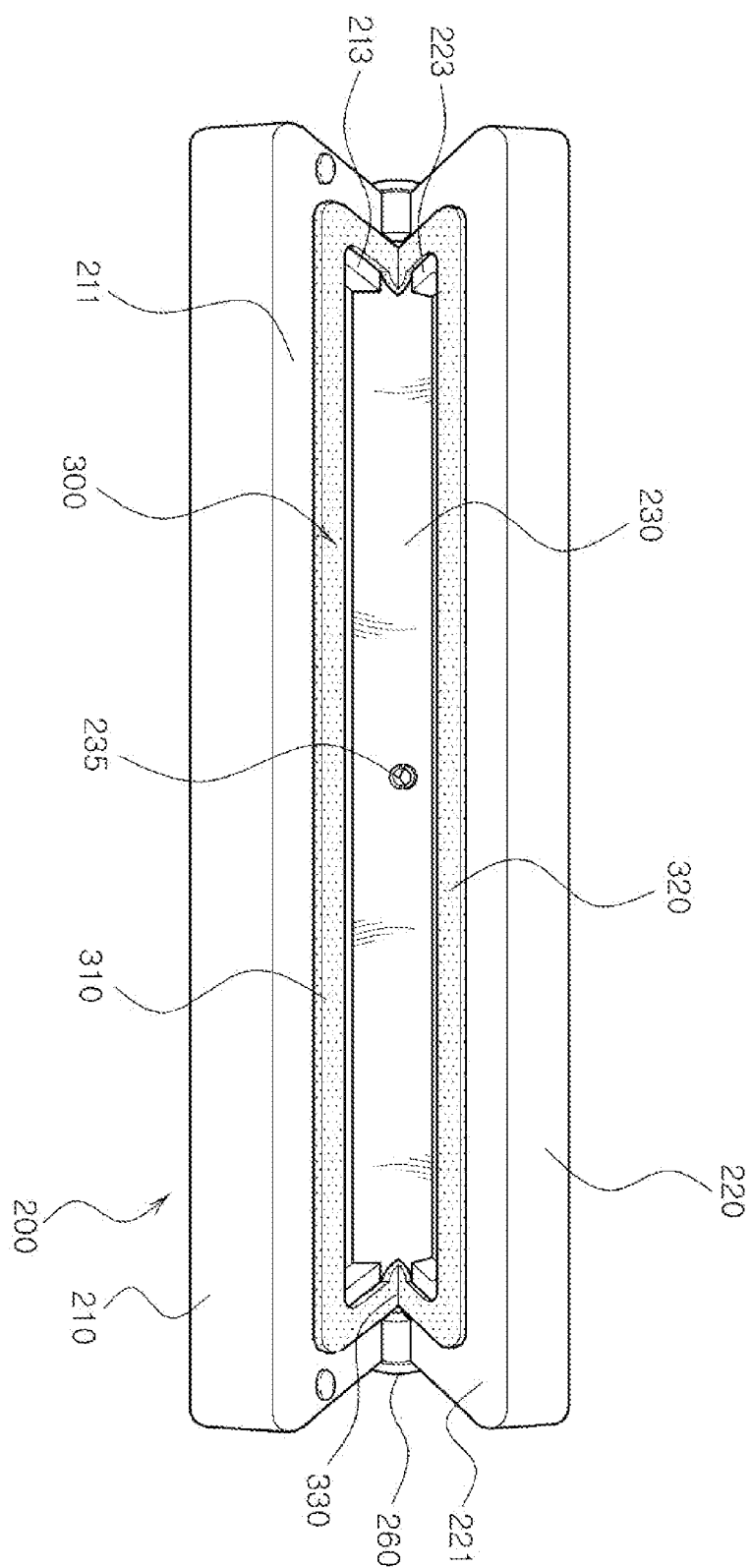
[FIG. 2]



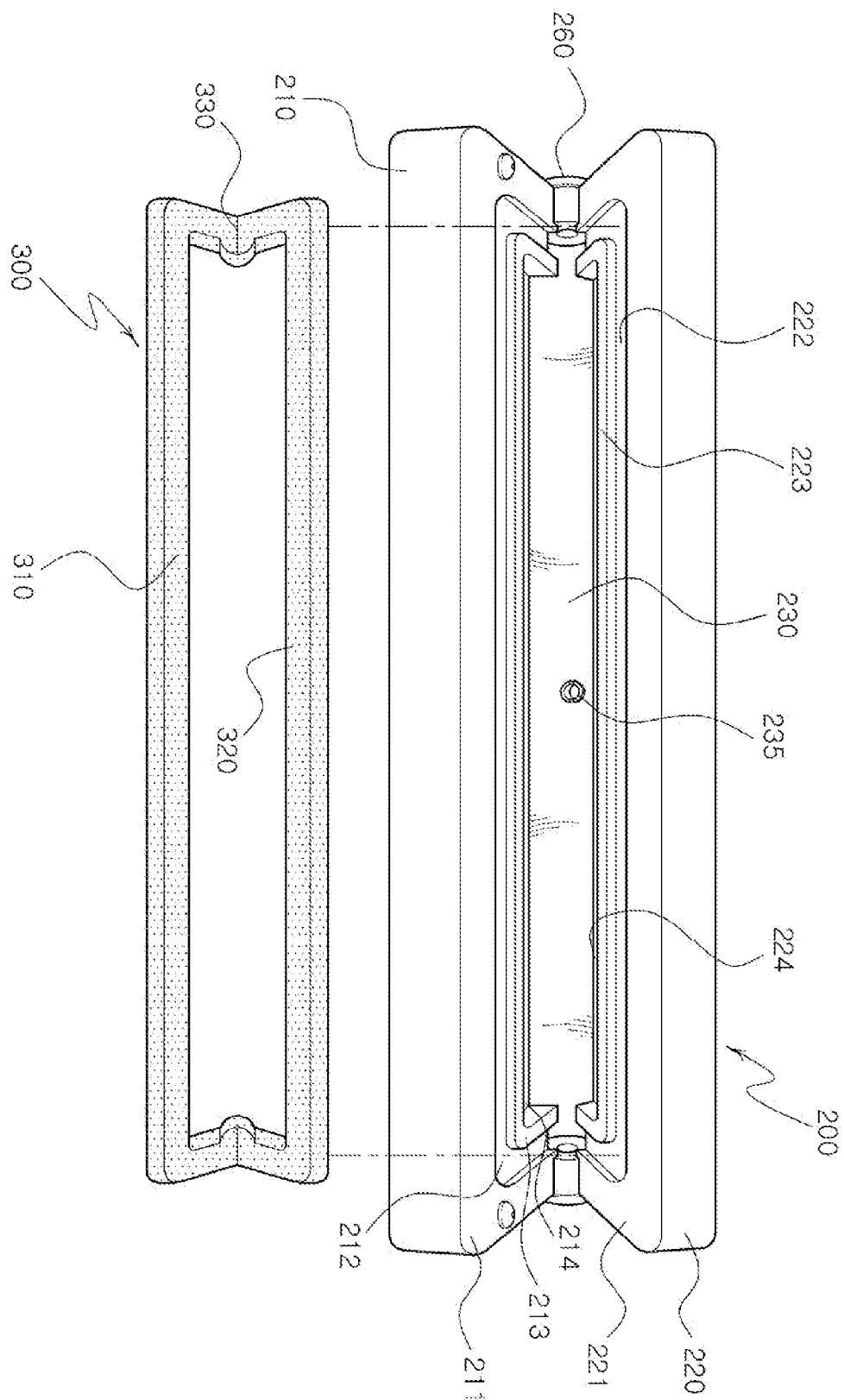
[FIG. 3]



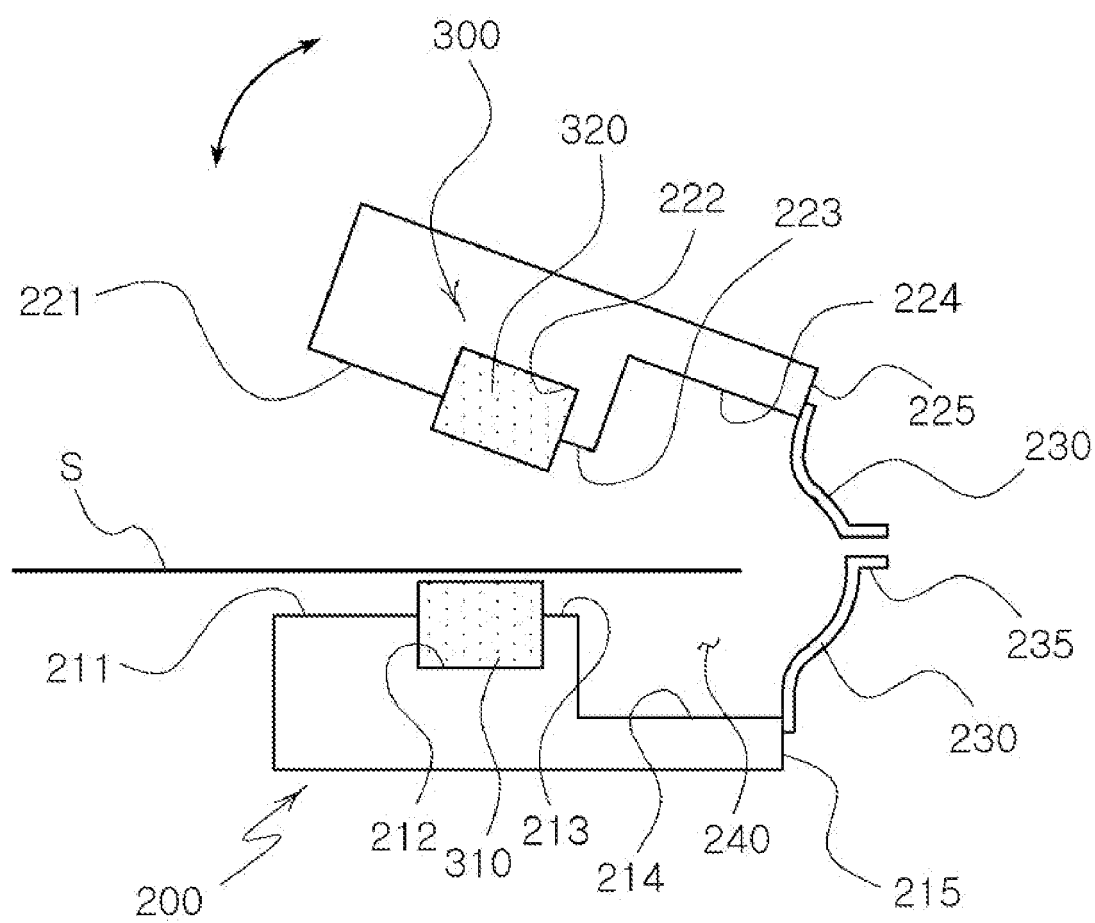
[FIG. 4a]



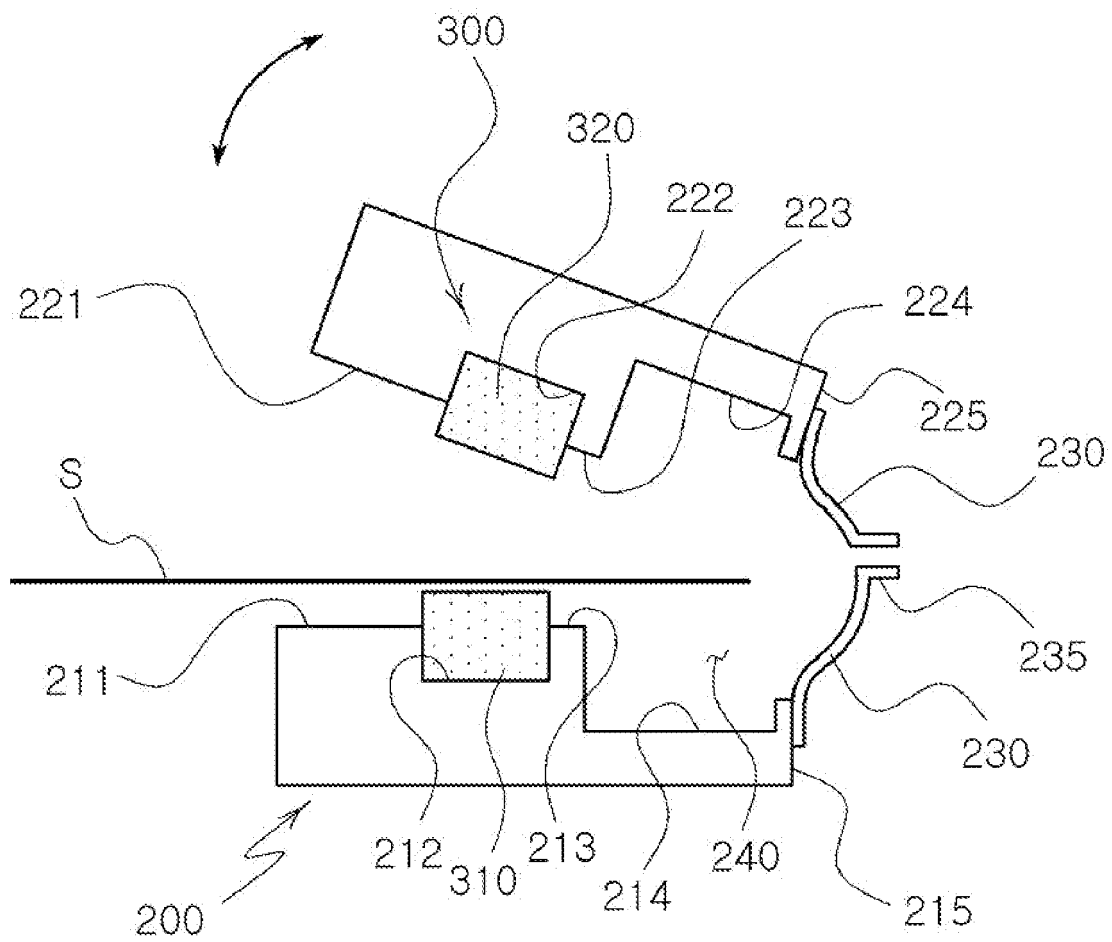
[FIG. 4b]



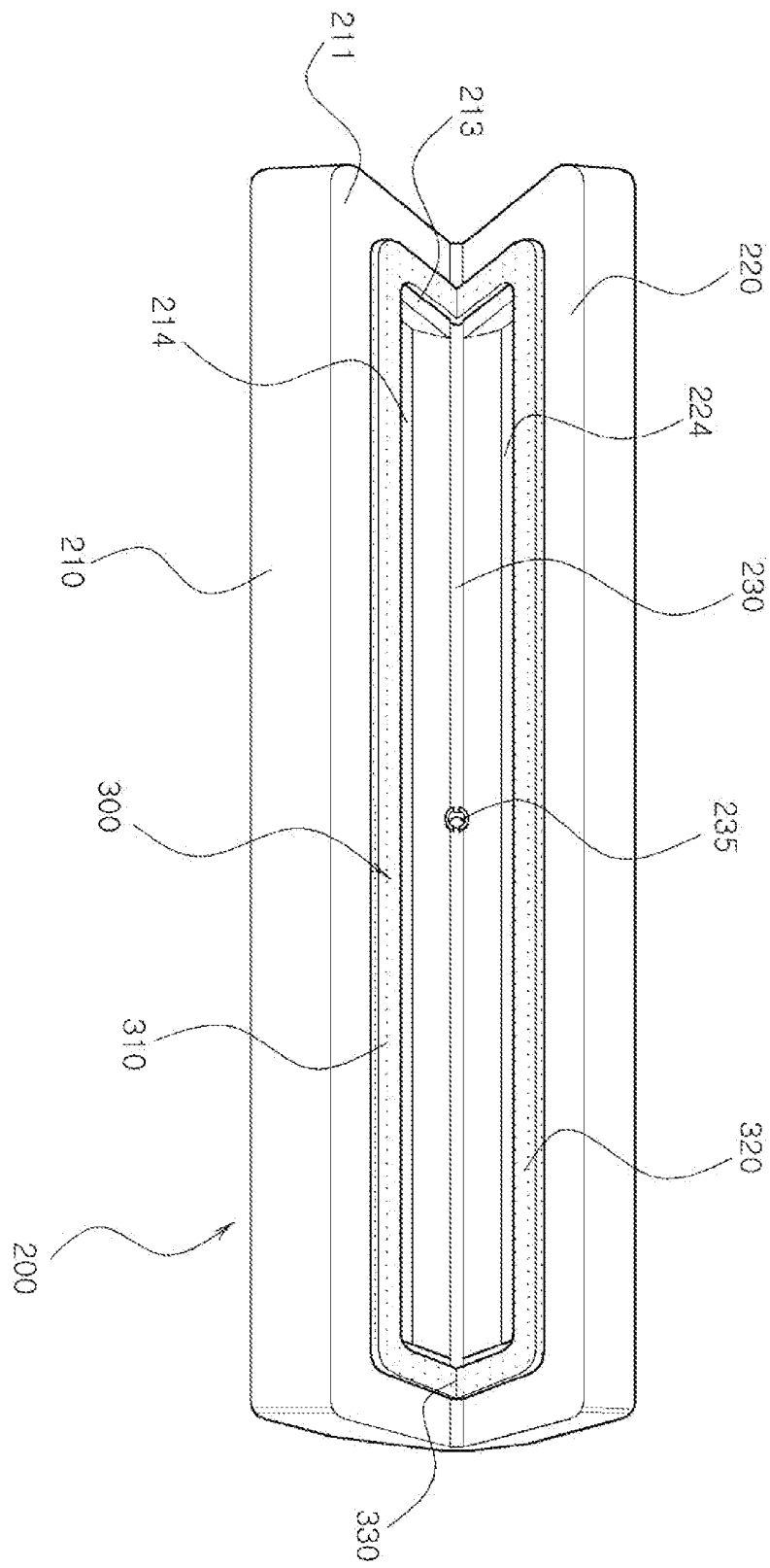
[FIG. 4c]



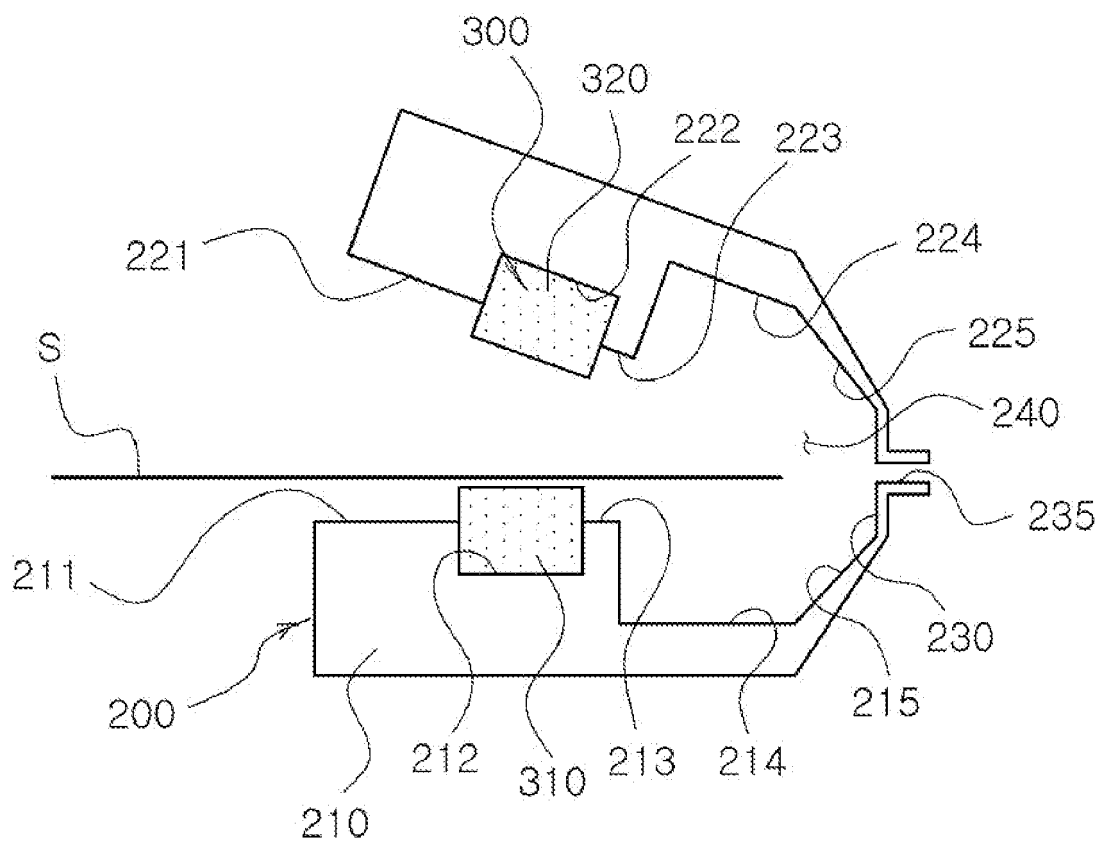
[FIG. 5]



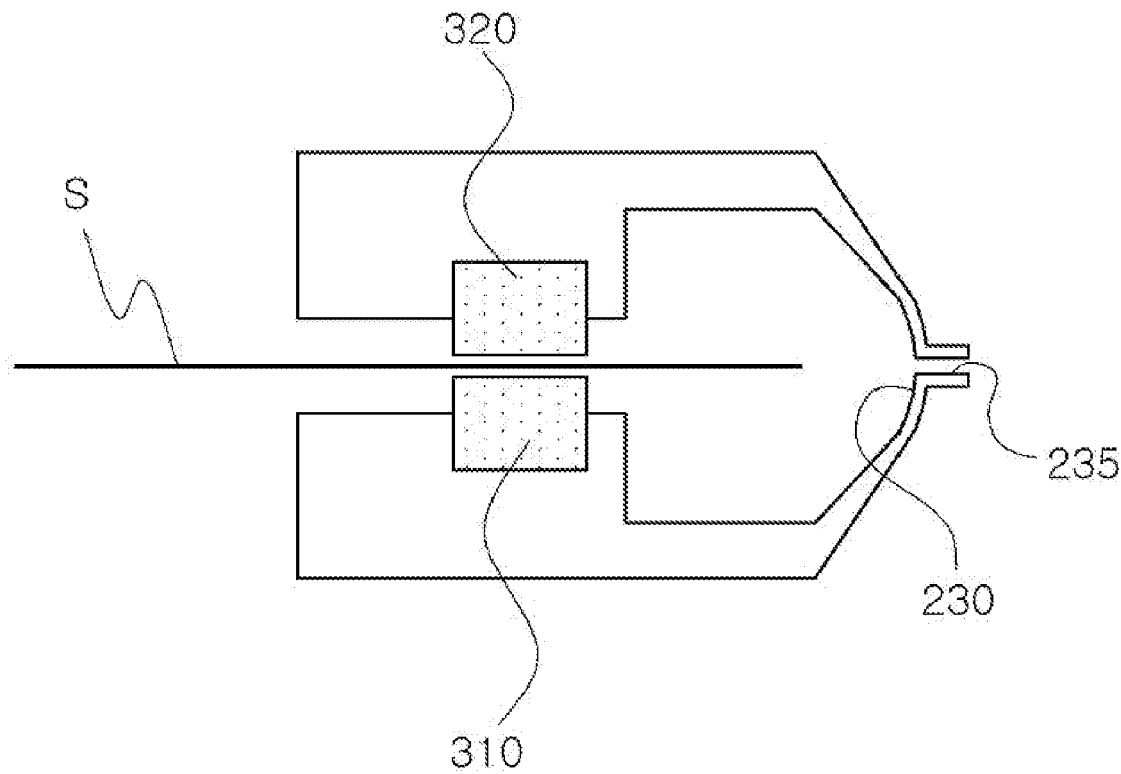
[FIG. 6a]



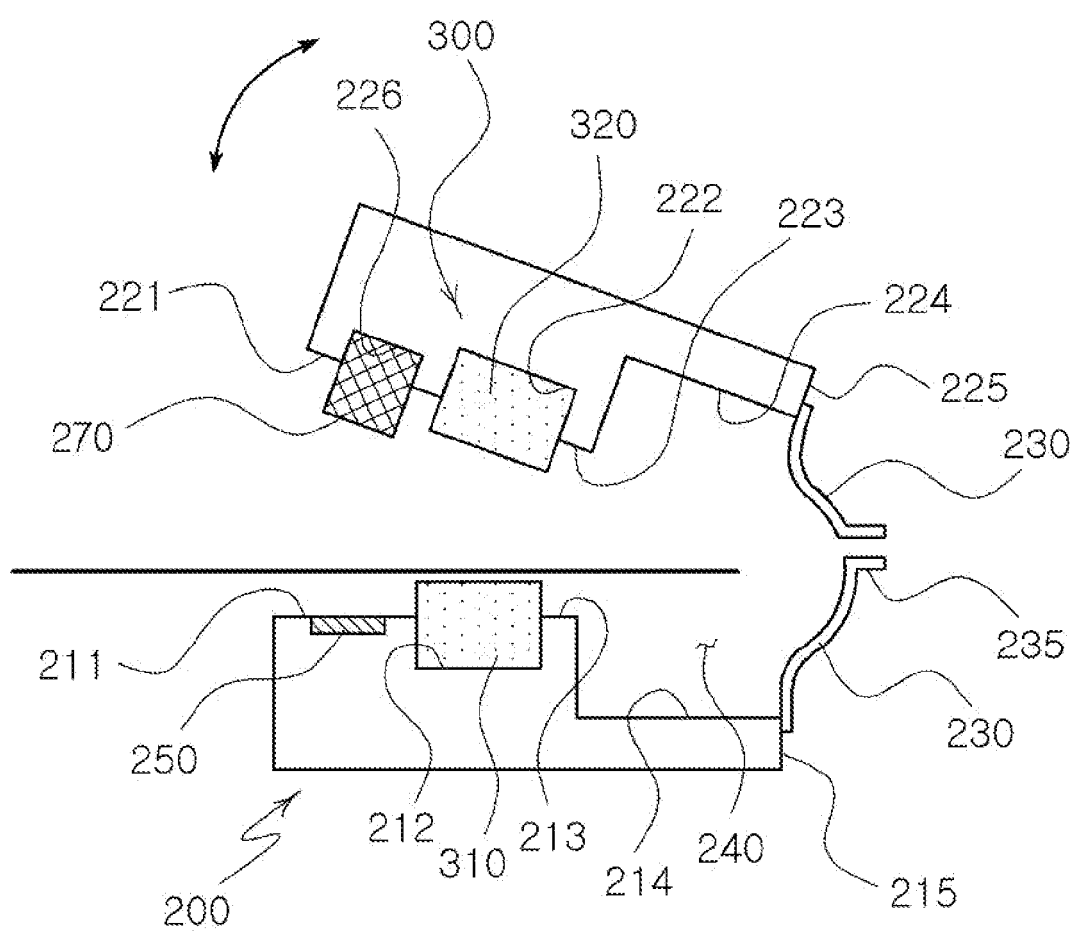
[FIG. 6b]



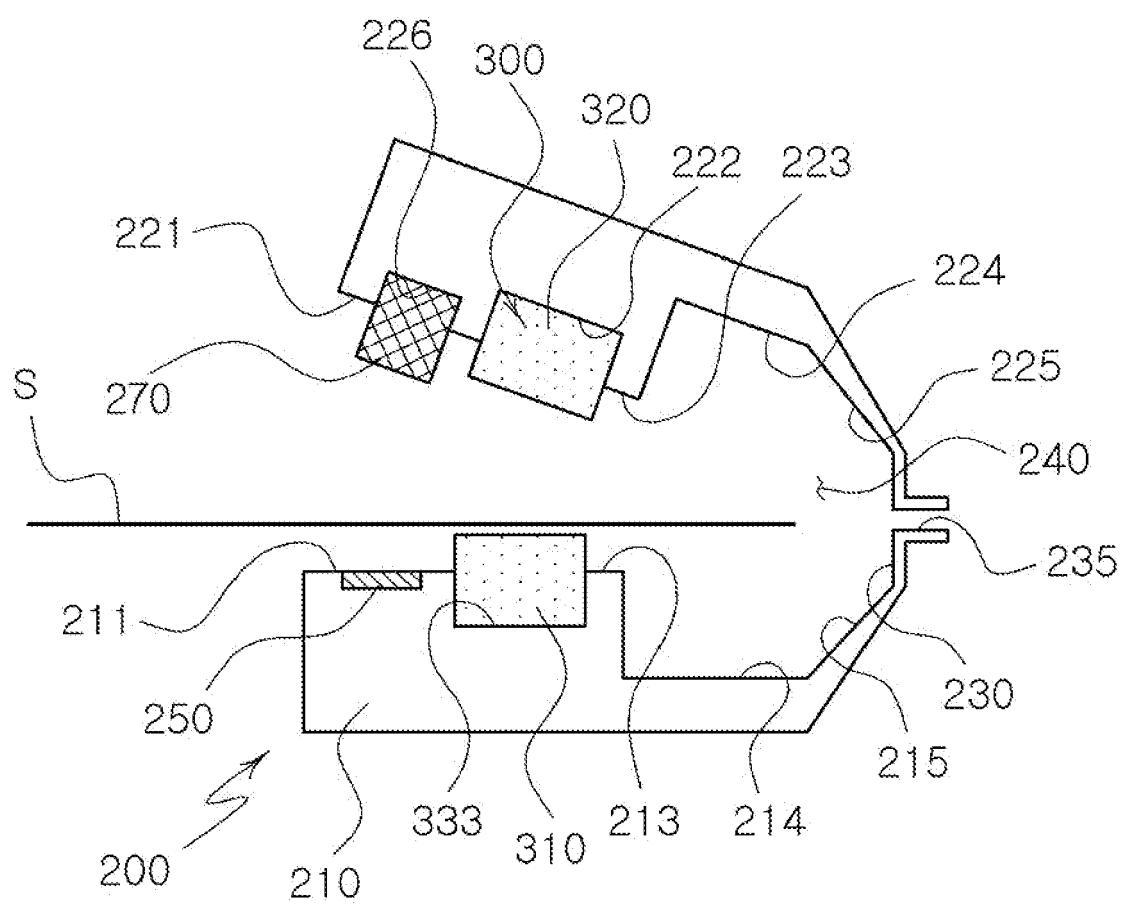
[FIG. 6c]



[FIG. 7]



[FIG. 8]





European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 08 10 1065

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			B65B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 20 June 2008	Examiner Jagusiak, Antony
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20-06-2008

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