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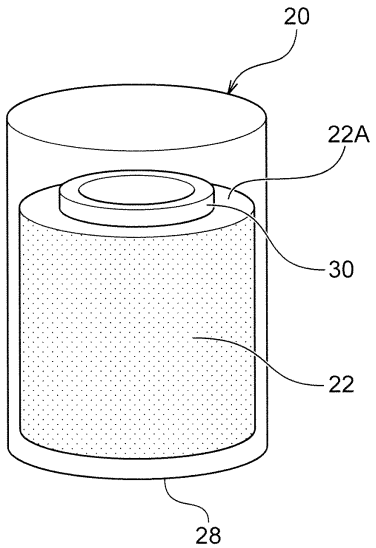
(54) **FLAVOR SOURCE FILLING CONTAINER AND FLAVOR INHALATION DEVICE**

(57) A flavor source filling container includes a bottom wall forming a bottom portion, and a susceptor element. The flavor source filling container contains a filling including a flavor source and an aerosol source therein. The filling has an exposed surface that is a surface exposed to an inner space in the flavor-filled container and intersecting with a direction in which a generated aerosol is drawn by inhalation of a user. The susceptor element is disposed so as to be placed in contact with the exposed surface of the filling and cover at least a part of the exposed surface.

FIG. 3A

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## Description

TECHNICAL FIELD

**[0001]** The present disclosure relates to a flavor source filling container and a flavor inhalation device.

BACKGROUND ART

**[0002]** Conventionally, there have been used disposable filled containers filled with flavor sources and aerosol sources in the technical field of flavor inhalation devices. For example, PTL 1 discloses a flavor inhalation device that heats a filled container by induction heating using a coil and a susceptor. However, when the filled container is heated by the induction heating, rapid and efficient heating can be achieved compared to a resistive heating type but a solid or quasi-solid filling may be excessively heated due to the rapid increase in the temperature and the filling may boil over from the filled container.

CITATION LIST

PATENT LITERATURE

**[0003]** PTL 1: Japanese Patent Application Laid-Open No. 2021-65236

SUMMARY OF INVENTION

TECHNICAL PROBLEM

**[0004]** The present disclosure provides a flavor source filling container and a flavor inhalation device capable of preventing a filling from boiling over from a filled container while realizing rapid and efficient heating.

SOLUTION TO PROBLEM

**[0005]** A first aspect of the present disclosure is a flavor source filling container including a bottom wall forming a bottom portion, and a susceptor element. The flavor source filling container contains a filling including a flavor source and an aerosol source therein. The filling has an exposed surface that is a surface exposed to an inner space in the flavor source filling container and intersecting with a direction in which a generated aerosol is drawn by inhalation of a user. The susceptor element is disposed so as to be placed in contact with the exposed surface of the filling and cover at least a part of the exposed surface.

**[0006]** In the above-described first aspect, the susceptor element, which is set as a target to be heated by induction heating, is disposed so as to be placed in contact with the exposed surface of the filling, which is exposed to the inner space in the flavor source filling container and intersects with the aerosol flow, and cover at least a part of the exposed surface. Therefore, according to the first aspect, the filling can be locally heated, and the filling can be prevented from being excessively heated and boiling over from the filled container due to that while being rapidly and efficiently heated by the induction heating, compared to a configuration in which the bottom wall or the side wall of the flavor source filling container itself functions as a susceptor.

**[0007]** A second aspect of the present disclosure is the flavor source filling container according to the above-described first aspect in which the susceptor element is in abutment with an upper end portion of the filling. The upper end portion is located opposite from the bottom wall.

**[0008]** In the above-described second aspect, the susceptor element, which is set as the target to be heated by the induction heating, is in abutment with the upper end portion of the filling located opposite from the bottom wall of the flavor source filling container. Therefore, according to the second aspect, the filling is heated from the upper surface, and the aerosol source or the flavor source is replenished from below with the aid of a capillary action when the aerosol source near the susceptor element is consumed, and thus a heating state desirable for a user can be maintained.

**[0009]** A third aspect of the present disclosure is the flavor source filling container according to the above-described first or second aspect in which a porous member including an aerosol source is provided at a position opposite of the susceptor element from the bottom wall.

**[0010]** In the above-described third aspect, the porous member including the aerosol source is provided at the position opposite of the susceptor element from the bottom wall. Therefore, according to the third aspect, the aerosol flow with the aerosol generated from the filling introduced therein further passes through the porous member including the aerosol source, and this can lead to a further increase in the aerosol amount reaching inside the user's mouth.

**[0011]** A fourth aspect of the present disclosure is the flavor source filling container according to the above-described third aspect in which the porous member is configured to have a hollow shape.

**[0012]** In the above-described fourth aspect, the porous member is configured to have a hollow shape. Therefore, according to the fourth aspect, the aerosol amount can be increased with the aid of the porous member including the aerosol source, and a passage through which the aerosol flows can also be secured with the aid of the hollow portion of the porous member, allowing the user to favorably inhale the flavor.

**[0013]** A fifth aspect of the present disclosure is the flavor source filling container according to the above-described third and fourth aspects in which a part of the porous member is in contact with the filling.

**[0014]** In the above-described fifth aspect, a part of the porous member including the aerosol source is in contact with the filling. Therefore, according to the fifth aspect, the susceptor element indirectly heats the aerosol source

included in the porous member via the filling, and thus the aerosol amount can be further increased.

**[0015]** A sixth aspect of the present disclosure is the flavor source filling container according to the above-described second aspect and the above-described third to fifth aspects according to the above-described second aspect, which further includes a retaining member retaining the susceptor element on the upper end portion of the filling.

**[0016]** In the above-described sixth aspect, the susceptor element, which is set as the target to be heated by the induction heating, is retained on the upper end portion of the filling with the aid of the retaining member. Therefore, according to the sixth aspect, the susceptor element can be retained at a desirable position to maintain the heating state favorable for the user.

**[0017]** A seventh aspect of the present disclosure is the flavor source filling container according to the above-described sixth aspect in which the retaining member is a fixation member extending through the susceptor element and inserted in the filling.

**[0018]** In the above-described seventh aspect, the susceptor element is retained on the upper end portion of the filling due to the fixation member extending through the susceptor element and inserted in the filling. Therefore, according to the seventh aspect, the susceptor element can be retained at a desirable position with a simple configuration.

**[0019]** An eighth aspect of the present disclosure is the flavor source filling container according to the above-described sixth aspect in which the retaining member is an insertion member forming a part of the susceptor element and inserted in the filling.

**[0020]** In the above-described eighth aspect, the susceptor element is retained on the upper end portion of the filling with the aid of the insertion of the insertion member forming a part of the susceptor element into the filling. Therefore, according to the eighth aspect, the susceptor element can be retained at a desirable position with a simple configuration.

**[0021]** A ninth aspect of the present disclosure is the flavor source filling container according to the above-described sixth aspect, which further includes a sealing cover sealing an end portion of the flavor source filling container opposite from the bottom wall. The retaining member is a pressing portion provided between the susceptor element and the sealing cover.

**[0022]** In the above-described ninth aspect, the pressing portion, which is provided between the seal cover sealing the upper end portion of the flavor source filling container and the susceptor element, retains the susceptor element on the upper end portion of the filling. Therefore, according to the ninth aspect, the susceptor element can be retained at a desirable position with a simple configuration.

**[0023]** A tenth aspect of the present disclosure is the flavor source filling container according to the above-described second aspect and the above-described third to ninth aspects according to the above-described second aspect, which further includes another susceptor element in abutment with a lower end portion of the filling from outside. The lower end portion is located opposite from the upper end portion.

**[0024]** According to the above-described tenth aspect, the susceptor element in abutment with the lower end portion of the filling is provided in addition to the susceptor element in abutment with the upper end portion of the filling. Therefore, according to the tenth aspect, heating efficient and contributive to preventing the filling from boiling over can be realized by conducting the induction heating locally above and below the filling.

**[0025]** An eleventh aspect of the present disclosure is the flavor source filling container according to the above-described first to tenth aspects in which the susceptor element is configured to have a hollow shape.

**[0026]** In the above-described eleventh aspect, the susceptor element is in contact with the exposed surface of the filling, which is exposed to the inner space in the flavor source filling container and intersects with the aerosol flow, and covers at least a part of the exposed surface. This susceptor element is configured to have a hollow shape. Therefore, according to the eleventh aspect, a passage through which the aerosol flows can be secured with the aid of the hollow portion of the susceptor element, allowing the user to desirably inhale the flavor.

**[0027]** A twelfth aspect of the present disclosure is the flavor source filling container according to the above-described eleventh aspect in which the filling is provided with a through-hole. An inner edge portion of the filling that is connected to a side surface of the through-hole forms a part of the exposed surface. The through-hole is in communication with a hollow portion of the hollow shape of the susceptor element.

**[0028]** In the above-described twelfth aspect, the filling is provided with the through-hole. The inner edge portion of the filling that is connected to the side surface of the through-hole forms a part of the exposed surface. The through-hole is in communication with the hollow portion of the hollow shape of the susceptor element. Therefore, according to the twelfth aspect, in the case where the susceptor element is embedded inside the filling, a passage through which the aerosol flows can be secured with the aid of the through-hole of the filling and the hollow portion of the susceptor element, allowing the user to desirably inhale the flavor.

**[0029]** A thirteenth aspect of the present disclosure is the flavor source filling container according to the above-described twelfth aspect in which the susceptor element includes a plurality of susceptor elements arranged along a direction in which the through-hole extends.

**[0030]** In the above-described thirteenth aspect, the susceptor element includes the plurality of susceptor elements arranged along the through-hole of the filling. Therefore, according to the thirteenth aspect, the flexibility of the induction heating can be improved by heating the plurality of susceptor elements individually.

**[0031]** A fourteenth aspect of the present disclosure is the flavor source filling container according to the above-described first to thirteenth aspects, which further includes a vent hole extending through the bottom wall.

**[0032]** In the above-described fourteenth aspect, the vent hole is provided through the bottom wall of the flavor source filling container. Therefore, according to the fourteenth aspect, an air flow path usable to introduce external air from outside the flavor source filling container is formed, and the aerosol is generated by a larger amount.

**[0033]** A fifteenth aspect of the present disclosure is a flavor inhalation device including the flavor source filling container according to the above-described first to fourteenth aspects.

**[0034]** In the above-described fifteenth aspect, the susceptor element, which is set as the target to be heated by the induction heating in the flavor source filling container, is disposed so as to be placed in contact with the exposed surface of the filling, which is exposed to the inner space in the flavor source filling container and intersects with the aerosol flow, and cover at least a part of the exposed surface. Therefore, according to the fifteenth aspect, the flavor inhalation device can be provided in such a manner that the filling can be locally heated, and the filling can be prevented from being excessively heated and boiling over from the flavor source filling container due to that while being rapidly and efficiently heated by the induction heating, compared to the configuration in which the bottom wall or the side wall of the flavor source filling container itself functions as a susceptor.

**[0035]** A sixteenth aspect of the present disclosure is the flavor inhalation device according to the above-described sixteenth aspect in which a coil is provided at a position aligned with the susceptor element along an axial direction substantially perpendicular to the bottom wall.

**[0036]** In the above-described sixteenth aspect, the coil is disposed at the position aligned with the susceptor element along the axial direction substantially perpendicular to the bottom wall of the flavor source filling container. Therefore, according to the sixteenth aspect, the susceptor element arranged near the coil can be appropriately inductively heated and the flavor inhalation device can also be designed to be reduced in axial length.

**[0037]** A seventeenth aspect of the present disclosure is a flavor inhalation device including the flavor source filling container according to the above-described tenth aspect. A plurality of coils is provided at positions aligned with the plurality of susceptor elements, respectively, along an axial direction substantially perpendicular to the bottom wall.

**[0038]** In the above-described seventeenth aspect, the plurality of coils is disposed at positions aligned along the axial direction substantially perpendicular to the bottom wall with the plurality of susceptor elements arranged along the direction in which the through-hole of the filling extends, respectively. Therefore, according to the seventeenth aspect, the flavor inhalation device can be provided with improved flexibility of the induction heating by inductively heating the corresponding susceptor elements using the plurality of coils.

**[0039]** An eighteenth aspect of the present disclosure is the flavor inhalation device according to the above-described seventeenth aspect, which further includes a control unit. The control unit controls heating in manners different from each other for the plurality of coils.

**[0040]** In the above-described eighteenth aspect, the control unit of the flavor inhalation device controls the heating in manners different from each other for the plurality of coils corresponding to the plurality of susceptor elements arranged along the direction in which the through-hole of the filling extends, respectively. Therefore, according to the eighteenth aspect, the flavor inhalation device can perform a heating method appropriate from the perspective of preventing the filling from boiling over and allowing the user to favorably inhale the flavor.

**[0041]** A nineteenth aspect of the present disclosure is the flavor inhalation device according to the above-described eighteenth aspect in which, among the plurality of coils, a coil located opposite from the bottom surface along the axial direction is heated more rapidly than a coil located on the bottom surface side.

**[0042]** In the above-described nineteenth aspect, the coil located opposite from the bottom wall along the axial direction is heated more rapidly than the coil located on the bottom wall side. Therefore, according to the nineteenth aspect, the filling near the bottom wall can be prevented from being heated first and then cooled and solidified, thereby impeding the advancement of the aerosol flow.

**[0043]** A twentieth aspect of the present disclosure is the flavor inhalation device according to the above-described fifteenth to nineteenth aspects, which further increase a removable mouthpiece. The mouthpiece includes a protrusion portion in abutment with the susceptor element.

**[0044]** In the above-described twentieth aspect, the flavor inhalation device further includes the removable mouthpiece, and the mouthpiece includes the protrusion portion in abutment with the susceptor element. Therefore, according to the twentieth aspect, the susceptor element can be retained at a desirable position in the flavor source filling container with the aid of the protrusion portion of the mouthpiece that presses the susceptor element in abutment therewith.

## BRIEF DESCRIPTION OF DRAWINGS

**[0045]**

Fig. 1 is an exploded perspective view of a flavor inhalation device according to a first embodiment of the present disclosure.

Fig. 2 is a cross-sectional view of a housing contain-

ing a pod according to the first embodiment, and a mouthpiece.

Fig. 3A is a perspective view illustrating the internal structure of the pod.

Fig. 3B is a perspective view illustrating an induction coil in addition to the pod illustrated in Fig. 3A.

Fig. 4 is a top view and a side view illustrating the configuration of a susceptor ring.

Fig. 5A is a perspective view illustrating a fixation pin.

Fig. 5B is a top view illustrating the susceptor ring retained on an upper end surface of a filling by the fixation pin.

Fig. 6A is a side view illustrating the susceptor ring including a protrusion pin.

Fig. 6B is a perspective view illustrating the susceptor ring including a cylindrical portion.

Fig. 7A is a cross-sectional view illustrating the pod including a retaining protrusion configured to have a hollow shape.

Fig. 7B is a perspective view illustrating the hollow shape of the retaining protrusion.

Fig. 8 is a perspective view illustrating the internal structure of the pod according to a modification of the first embodiment.

Fig. 9 is a schematic view of an electric system of a flavor inhalation device according to a second embodiment.

Fig. 10A is a cross-sectional view illustrating the internal configuration of a pod according to the second embodiment.

Fig. 10B is a perspective view extracting and illustrating a through-hole of a filling and a susceptor ring illustrated in Fig. 10A.

Fig. 11 is a cross-sectional view illustrating another internal configuration of the pod according to the second embodiment.

Fig. 12 is a perspective view illustrating the internal structure of a pod according to a third embodiment.

Fig. 13 is a cross-sectional view of an upper portion of the pod according to the third embodiment taken along a cross section perpendicular to a bottom surface.

Fig. 14 is a perspective view illustrating the internal structure of the pod according to a modification of the third embodiment.

Fig. 15 is a cross-sectional view illustrating the internal configuration of a pod according to a fourth embodiment.

Fig. 16A is a perspective view illustrating an upper surface of the pod according to the fourth embodiment.

Fig. 16B is a top view of a mesh cover.

Fig. 17 is a cross-sectional view illustrating the internal configuration of a pod according to a fifth embodiment.

## DESCRIPTION OF EMBODIMENTS

**[0046]** [First Embodiment] In the following description, a first embodiment of the present disclosure will be described with reference to the drawings.

**[0047]** Fig. 1 is an exploded perspective view of a flavor inhalation device 10 according to the first embodiment. Fig. 2 is a cross-sectional view of a housing 11 containing a pod 20, and a mouthpiece 18.

**[0048]** As illustrated in Fig. 1, the flavor inhalation device 10 according to the first embodiment includes the mouthpiece 18, the pod 20, and the housing 11. The flavor inhalation device 10 is configured to generate an aerosol including a flavor by heating a filling 22 including an aerosol source and a flavor source contained in the pod 20. The pod 20 includes a bottom wall 28, and a seal member 24 sealing an end portion opposite from the bottom wall 28. The pod 20 is made from an insulating material such as resin, and, especially, can be made from polycarbonate (PC), ABS (Acrylonitrile-Butadiene-Styrene) resin, PEEK (polyetheretherketone), PEI (polyetherimide), a polymer alloy containing a plurality of kinds of polymers, or the like. The seal member 24 can be made from a metallic foil such as an aluminum foil as one example. The pod 20 is one example of a flavor source filling container according to the present disclosure. The seal member 24 is one example of a sealing cover according to the present disclosure.

**[0049]** The mouthpiece 18 is connected to one end portion of the housing 11 so as to close a cavity 11A of the housing 11 containing the pod 20. A hole as an inhalation port 18B used for user's inhalation is provided at the dial end of the mouthpiece 18. As illustrated in Fig. 2, a passage through which an airflow P1 and an aerosol flow P2 pass is provided inside the mouthpiece 18. When the user of the flavor inhalation device 10 inhales air from the inhalation port 18B of the mouthpiece 18, the air flowing from an air inlet 14 into the housing 11 forms the airflow P1, which passes through inside the housing 11 and the mouthpiece 18 and moves toward inside the user's mouth. As schematically illustrated in Fig. 2, the aerosol flow P2 is generated as a result of introducing the aerosol including the flavor generated in the pod 20 into the airflow P1, and the aerosol flow P2 passes through inside the mouthpiece 18 to reach inside the user's mouth together with the airflow P1.

**[0050]** Fig. 2 illustrates the air inlet 14 in communication with the bottom surface of the pod 20, but the airflow P1 in the housing 11 of the flavor inhalation device 10 is not limited thereto. For example, the air inlet can also be provided in communication with the vicinity of the seal member 24 of the pod 20, and, in this case, the airflow P1 is generated in a manner different from the illustration of Fig. 2. However, even in this case, the aerosol flow P2 remains generated as schematically illustrated in Fig. 2 inside the housing 11 and the mouthpiece 18 as a result of drawing the aerosol including the flavor generated in the pod 20 toward the inhalation port 18B side of the mouth-

piece 18 together with the airflow P1.

**[0051]** On the other hand, the flavor inhalation device 10 can also be configured in such a manner that the air flowing via the air inlet 14 illustrated in Fig. 2 enters inside the pod 20 via, for example, the bottom wall 28 of the pod 20. In this case, the airflow P1 is generated as a flow directed from the bottom wall 28 side of the pod 20 to the mouthpiece 18 by passing through inside the filling 22.

**[0052]** As illustrated in Fig. 2, the housing 11 includes an induction coil 16 in addition to the air inlet 14. The induction coil 16 is a member disposed so as to surround the pod 20 contained in the housing 11 and used to heat a susceptor ring 30 disposed in the pod 20. The induction coil 16 is one example of a coil according to the present disclosure. The susceptor ring 30 is one example of a susceptor element according to the present disclosure.

**[0053]** The flavor inhalation device 10 according to the first embodiment employs an induction heating method as a method for heating the filling 22 including the flavor source and the aerosol source contained in the pod 20. The induction heating is enabled by placing a conductive susceptor as a target to be heated in a time-varying magnetic field. Under the influence of the time-varying magnetic field, eddy currents are induced in the susceptor, and Joule heat is generated based on the eddy currents. As a result thereof, the susceptor generates heat. Further, in a case where a ferromagnetic susceptor is used, a hysteresis loss when a magnetic domain is switched inside the susceptor also contributes to the heat generation of the susceptor.

**[0054]** The flavor inhalation device 10 causes an alternating current supplied from a not-illustrated power source provided to the housing 11 to flow in the induction coil 16, thereby generating the time-varying magnetic field near the induction coil 16 and inductively heating the susceptor 30.

**[0055]** Next, the internal configuration of the pod 20 will be described in detail. Fig. 3A is a perspective view illustrating the internal structure of the pod 20. Fig. 3B is a perspective view illustrating the induction coil 16 in addition to the pod 20 illustrated in Fig. 3A. The illustration of the seal member 24 is omitted in Figs. 3A and 3B for convenience of the description. Fig. 4 is a top view and a side view illustrating the configuration of the susceptor ring 30. Fig. 5A is a perspective view illustrating a fixation pin 32. Fig. 5B is a perspective view illustrating the susceptor ring 30 retained on an upper end surface 22A of the filling 22 by the fixation pin 32. Fig. 6A is a side view illustrating the susceptor ring 30 including a protrusion pin 34. Fig. 6B is a perspective view illustrating the susceptor ring 30 including a cylindrical portion 36. Fig. 7A is a cross-sectional view illustrating the pod 20 including a protrusion member 26 configured to have a hollow shape. Fig. 7B is a perspective view illustrating the hollow shape of the protrusion member 26.

**[0056]** As illustrated in Fig. 3A, the filling 22 is contained inside the pod 20. More specifically, the filling 22 is a solid or quasi-solid substance in which the aerosol source is mixed in the solid-state flavor source at a predetermined mass ratio. The ratio of the flavor source and the aerosol source is within a numeral range of 5:1 to 1:10. The flavor source is specifically shredded tobacco, and usable tobacco types include tobacco in the form of a lamina, a stem, or the like, and another known plant. Further, the flavor source may also include a flavoring such as menthol. Further, examples of the aerosol source include glycerin, propylene glycol, triacetin, 1,3-butanediol, and mixtures thereof.

**[0057]** As illustrated in Fig. 3A, the lower end surface of the filling 22 is covered with the bottom wall 28 of the pod 20, but the upper end surface 22A of the filling 22 is exposed to the inner space in the pod 20. The susceptor ring 30 is in abutment with the upper end surface 22A of the filling 22, and covers a part of the upper end surface 22A therewith. Due to the heat generation of the susceptor ring 30, the filling 22 including the aerosol source and the flavor source contained in the pod 20 is heated, and the aerosol including the flavor is generated. Therefore, the aerosol flows out from the surface of the filling 22 in abutment with or in the vicinity of the susceptor ring 30 to the inner space in the pod 20. Now, as understood from additional reference to the aerosol flow P2 schematically illustrated in Fig. 2, the upper end surface 22A of the filling 22 intersects with the aerosol flow P2. The upper end surface 22A is a surface among the surfaces of the filling 22 that intersects with a direction in which the generated aerosol is drawn according to the user's inhalation. In other words, the upper end surface 22A is a surface among the surfaces of the filling 22 through which the generated aerosol passes when flowing out from the filling 22 to the inner space in the pod 20 at the time of the user's inhalation. Upon the user's inhalation, the generated aerosol is drawn from the surface of the filling 22 toward the inhalation port 18B. The upper end surface 22A of the filling 22 is one example of an exposed surface according to the present disclosure.

**[0058]** The susceptor plate disposed in abutment with the upper end surface 22A of the filling 22 is not limited to the ring shape and can also be shaped in another manner. However, configuring the susceptor plate as the susceptor ring 30 hollowly shaped as illustrated in Fig. 4 is advantageous because bringing about the following merits. The eddy currents induced due to electromagnetic induction are concentrated to the end portion of the susceptor plate regardless of whether metal is present at the central portion of the susceptor plate, and therefore the susceptor plate can be efficiently heated with a smaller amount of material by hollowly structuring the central portion of the susceptor plate where the eddy currents are less generated. Further, the hollowly shaped susceptor plate placed on the filling 22 leads to an increase in the exposed area of the upper end surface 22A of the filling 22, thereby facilitating the flowing motion of the aerosol flow P2.

**[0059]** As described above, in the flavor inhalation device 10, the induction coil 16 is disposed so as to

surround the pod 20 contained in the housing 11. More specifically, as illustrated in Fig. 3B, the induction coil 16 is disposed so as to extend to align with the susceptor ring 30 and surround the susceptor ring 30 therearound when the pod 20 is contained inside the housing 11.

**[0060]** Further, the flavor inhalation device 10 can include a mechanism for retaining the susceptor ring 30 on the upper end surface 22A of the filling 22. A fixation pin 32 illustrated in Fig. 5A can be used as one example. The fixation pint 32 has a strength and a length sufficient to allow the fixation pin 32 to be inserted through the hollow portion of the susceptor ring 30 and the tip thereof to be stuck into the upper end surface 22A of the filling 22. As illustrated in Fig. 5B, the susceptor ring 30 can be fixed to the filling 22 by inserting one fixation pin 32 as one example into the hollow portion of the susceptor ring 30 from above the susceptor ring 30 and placing the upper end of the fixation pin 32 in abutment with at least a part of the surface of the susceptor ring 30. The fixation pin 32 is one example of a retaining member and a fixation member according to the present disclosure.

**[0061]** As another example, a protrusion pin 34 can be provided to the susceptor ring 30 as illustrated in Fig. 6A. In this case, the susceptor ring 30 can be fixed to the filling 22 by sticking the protrusion pin 34 into the upper end surface 22A of the filling 22. The protrusion pin 34 is one example of the retaining member and an insertion member according to the present disclosure.

**[0062]** Further, as another example, the susceptor ring 30 can be configured to include a cylindrical portion 36 extending in communication with the hollow portion of the susceptor ring 30 as illustrated in Fig. 6B. The susceptor ring 30 can be fixed to the filling 22 by sticking the cylindrical portion 36 of the susceptor ring 30 into the upper end surface 22A of the filling 22. The cylindrical portion 36 is one example of the retaining member and the insertion member according to the present disclosure. The cylindrical portion 36 is not limited to the cylindrical shape, but is preferably cylindrically formed in conformity with the shape of the hollow portion of the susceptor ring 30. In a case where the hollow portion of the susceptor ring 30 is elliptic, the cylindrical portion 36 may be elliptic in cross section. The length of the cylindrical portion 36 is preferably not too long from the perspective of preventing the filling 22 from boiling over. More specifically, the length of the cylindrical portion 36 is preferably selected so as to allow the lower end of the cylindrical portion 36 to be located higher than the center of the pod 20 with the cylindrical portion 36 stuck in the upper end surface 22A of the filling 22.

**[0063]** As further one example, the susceptor ring 30 can be retained by being pressed against the upper end surface 22A of the filling 22 with a protrusion member 26 provided between the susceptor ring 30 and the seal member 24 as illustrated in Fig. 7A. The protrusion member 26 is configured to have a hollow shape as illustrated in Fig. 7B, and therefore does not block the aerosol flow in the pod 20. The protrusion member 26 is one example of the retaining member and a pressing member according to the present disclosure.

**[0064]** Further, a protrusion portion 18A of the mouthpiece 18 illustrated in Fig. 1 can be configured in such a manner that the distal end thereof is in abutment with the susceptor ring 30 in the pod 20. In the flavor inhalation device 10, the protrusion portion 18A of the mouthpiece 18 functions to break the seal member 24 of the pod 20 to establish communication of the inner space in the pod 20 with the not-illustrated air flow path in the mouthpiece 18. Then, the protrusion portion 18A can be configured to press the susceptor ring 30 against the upper end surface 22A of the filling 22 to retain it by appropriately setting the length and the hardness of the protrusion portion 18A.

**[0065]** (Operations of First Embodiment) In the pod 20 according to the first embodiment, the susceptor ring 30, which is set as a target to be heated by the induction heating, is disposed so as to be placed in contact with the upper end surface 22A of the filling 22, which is exposed to the inner space in the pod 20 and intersects with the aerosol flow P2, and cover at least a part of the upper end surface 22A therewith. Therefore, according to the first embodiment, the filling 22 can be locally heated, and the filling 22 can be prevented from being excessively heated and boiling over from the pod 20 due to that while being rapidly and efficiently heated by the induction heating, compared to a configuration in which the bottom wall 28 or the side wall of the pod 20 itself functions as a susceptor. Further, the susceptor ring 30 is disposed on the upper end surface 22A among the surfaces of the filling 22 through which the generated aerosol flows out of the filling 22 into the inner space in the pod 20 at the time of the user's inhalation, and the surface of the susceptor ring 30 on the inhalation port side is exposed to the inner space in the pod 20. In other words, the surface of the susceptor ring 30 on the inhalation port side is not covered with the filling 22. Employing this configuration can prevent the filling 22 from boiling over because not causing such a phenomenon that the aerosol flow generated around the susceptor ring 30 pushes up the filling 22 covering it thereover, compared to a configuration in which the surface of the susceptor ring 30 on the inhalation port side is covered with the filling 22.

**[0066]** In the pod 20 according to the first embodiment, the susceptor ring 30, which is set as the target to be heated by the induction heating, is in abutment with the upper end surface 22A of the filling 22 located opposite from the bottom wall 28 of the pod 20. Therefore, according to the first embodiment, the filling 22 is heated from the upper surface, and the aerosol source or the flavor source is replenished from below with the aid of a capillary action when the aerosol source near the susceptor ring 30 is consumed, and thus the heating state favorable for the user can be maintained.

**[0067]** Further, in the pod 20 according to the first embodiment, the susceptor ring 30, which is set as the target to be heated by the induction heating, is retained on the upper end surface 22A of the filling 22 with the aid

of the fixation pin 32, the protrusion pin 34, or the protrusion member 26. Therefore, according to the first embodiment, the susceptor ring 30 can be retained at a desirable position to maintain the heating state favorable for the user.

**[0068]** More specifically, the susceptor ring 30 is retained on the upper end surface 22A of the filling 22 with the aid of the fixation pin 32 extending through the hollow portion of the susceptor ring 30 and inserted in the filling 22. Alternatively, more specifically, the susceptor ring 30 is retained on the upper end surface 22A of the filling 22 with the aid of the insertion of the protrusion pin 34 forming a part of the susceptor ring 30 into the filling 22. Alternatively, more specifically, the protrusion member 26, which is provided between the seal member 24 sealing the upper end portion of the pod 20 and the susceptor ring 30, retains the susceptor ring 30 on the upper end surface 22A of the filling 22. In this manner, according to the first embodiment, the susceptor ring 30 can be retained at a desirable position with a simple configuration. Therefore, the susceptor element can be retained at a desirable position.

**[0069]** Further, in the pod 20 according to the first embodiment, the susceptor plate is in contact with the upper end surface 22A of the filling 22, which is exposed to the inner space in the pod 20 and intersects with the aerosol flow P2, and covers at least a part of the upper end surface 22A. This susceptor plate is configured as the hollowly shaped susceptor ring 30. Therefore, according to the first embodiment, a passage through which the aerosol flows can be secured due to the hollow portion of the susceptor ring 30, allowing the user to favorably inhale the flavor.

**[0070]** Further, in the flavor inhalation device 10 according to the first embodiment, the susceptor ring 30, which is set as the target to be heated by the induction heating in the pod 20, is disposed so as to be placed in contact with the upper end surface 22A of the filling 22, which is exposed to the inner space in the pod 20 and intersects with the aerosol flow P2, and cover at least a part of the upper end surface 22A. Therefore, according to the first embodiment, the flavor inhalation device can be provided in such a manner that the filling 22 can be locally heated, and the filling 22 can be prevented from being excessively heated and boiling over from the pod 20 due to that while being rapidly and efficiently heated by the induction heating, compared to the configuration in which the bottom wall 28 or the side wall of the pod 20 itself functions as a susceptor.

**[0071]** Further, in the flavor inhalation device 10 according to the first embodiment, the induction coil 16 is disposed at the position aligned with the susceptor ring 30 along the axial direction substantially perpendicular to the bottom wall 28 of the pod 20. Therefore, according to the first embodiment, the susceptor ring 30 arranged near the induction coil 16 can be appropriately inductively heated and the flavor inhalation device 10 can also be designed to be reduced in axial length.

**[0072]** Further, in the first embodiment, the flavor inhalation device 10 further includes the removable mouthpiece 18, and the mouthpiece 18 includes the protrusion portion 18A in abutment with the susceptor ring 30. Therefore, according to the first embodiment, the susceptor ring 30 can be retained at a desirable position in the pod 20 with the aid of the protrusion portion 18A of the mouthpiece 18 that presses the susceptor ring 30 against the filling 22 in abutment with the susceptor ring 30.

**[0073]** [Modification of First Embodiment] In the following description, a modification of the first embodiment will be described. The modification will be described, assigning the same reference numerals to similar or corresponding portions to the above-described first embodiment and omitting the descriptions thereof.

**[0074]** In the housing 11 according to the modification of the first embodiment, the air flowing via the air inlet 14 illustrated in Fig. 2 enters inside the pod 20 via the bottom wall 28 of the pod 20. As described above, the airflow P1 is formed as a flow directed to the mouthpiece 18 by passing through inside the filling 22 in this case.

**[0075]** Fig. 8 is a perspective view illustrating the internal structure of the pod 20 according to the modification of the first embodiment. The illustration of the susceptor ring 30 and the seal member 24 is omitted in Fig. 8 for convenience of the description.

**[0076]** As illustrated in Fig. 8, the pod 20 according to the modification of the first embodiment includes a plurality of vent holes 28A extending through the bottom wall 28. The air flowing into the housing 11 via the air inlet 14 enters inside the pod 20 via these vent holes 28A.

**[0077]** (Operations of Modification of First Embodiment) In the modification of the first embodiment, the plurality of vent holes 28A is formed through the bottom wall 28 of the pod 20. Therefore, according to the modification of the first embodiment, an air flow path usable to introduce air from outside the pod 20 is formed, and a larger amount of aerosol is generated.

**[0078]** [Second Embodiment] Next, a second embodiment of the present disclosure will be described with reference to the drawings. The second embodiment will be described, assigning the same reference numerals to similar or corresponding portions to the above-described first embodiment and omitting the descriptions thereof.

**[0079]** Fig. 9 is a schematic view of an electric system of a flavor inhalation device 110 according to the second embodiment.

**[0080]** A mechanical system of the flavor inhalation device 110 according to the second embodiment is configured similarly to the flavor inhalation device 10 according to the first embodiment illustrated in Figs. 1 and 2, and therefore the illustration and the detailed description thereof will be omitted herein.

**[0081]** On the other hand, as schematically illustrated in Fig. 9, the configuration of the electric system of the flavor inhalation device 110 includes a power source unit 111, a sensor unit 112, a notification unit 113, a storage unit 114, a communication unit 115, a control unit 116, and

a heating unit 117.

**[0082]** The power source unit 111 accumulates electric power. Then, the power source unit 111 supplies electric power to each component of the flavor inhalation device 110 based on control by the control unit 116. The power source unit 111 can be embodied using, for example, a rechargeable battery such as a lithium-ion secondary battery.

**[0083]** The sensor unit 112 acquires various kinds of information regarding the flavor inhalation device 110. As one example, the sensor unit 112 is embodied using a pressure sensor such as a condenser microphone, a flow rate sensor, a temperature sensor, or the like, and acquires a value accompanying the user's inhalation. As another example, the sensor unit 112 is embodied using an input device that receives an input of information from the user, such as a button or a switch.

**[0084]** The notification unit 113 notifies information of the user. The notification unit 113 is embodied using, for example, a light-emitting device that emits light (for example, an LED), a display device that displays an image, a sound output device that outputs sound, or a vibration device that vibrates.

**[0085]** The storage unit 114 stores therein various kinds of information for the operation of the flavor inhalation device 110. The storage unit 114 is embodied using, for example, a non-volatile storage medium such as a flash memory. Further, the storage unit 114 also stores therein, for example, a program like firmware in addition to a computer-executable command for causing the flavor inhalation device 110 to operate.

**[0086]** The storage unit 114 stores a plurality of operation profiles therein. The operation profiles include a heating profile of a susceptor ring 130, which will be described below. The heating profile defines a transition of an alternating current to be supplied to the induction coil 16 to heat the susceptor ring 130. Fig. 9 illustrates an example in which the flavor inhalation device 110 includes one induction coil set by way of example (refer to Fig. 10A), but the flavor inhalation device 110 may include a plurality of induction coil sets in the second embodiment. More specifically, the flavor inhalation device 110 can include two induction coil sets 16A and 16B (refer to Fig. 11), as will be described below.

**[0087]** The communication unit 115 is a communication interface capable of carrying out communication in compliance with an arbitrary wired or wireless communication standard. As this communication standard, for example, Wi-Fi (registered trademark) or Bluetooth (registered trademark) can be employed in the case of wireless communication. On the other hand, in the case of wired communication, for example, a data communication cable is connected via an external connection terminal such as a micro USB. Using that, data regarding the operation of the flavor inhalation device 110 is input and output between the flavor inhalation device 110 and an external apparatus.

**[0088]** The control unit 116 functions as an arithmetic processing device and a control device, and controls the overall operation in the flavor inhalation device 110 according to various kinds of programs. The control unit 116 is realized by an electronic circuit such as a CPU (Central Processing Unit) and a microprocessor.

**[0089]** The control unit 116 identifies the operation profile associated with the data measured by the sensor unit 112. Then, the control unit 116 causes the flavor inhalation device 110 to operate according to the identified operation profile. Especially, the control unit 116 controls the operation of the heating unit 117 based on the heating profile of the susceptor ring 130 stored in the storage unit 114.

**[0090]** The heating unit 117 supplies an alternating current to the induction coil 16, thereby inductively heating the susceptor disposed in a pod 120 (for example, the susceptor ring 130, which will be described below).

**[0091]** Next, the internal configuration of the pod 120 according to the second embodiment will be described in detail. Fig. 10A is a cross-sectional view illustrating the internal configuration of the pod 120 according to the second embodiment. Fig. 10B is a perspective view extracting and illustrating a through-hole 122 of the filling 22 and the susceptor ring 130 from Fig. 10A. Fig. 11 is a cross-sectional view illustrating another internal configuration of the pod 120. The illustration of the seal member 24 is omitted in Figs. 10A and 11 for convenience of the description. The pod 120 is one example of the flavor source filling container according to the present disclosure.

**[0092]** As illustrated in Fig. 10A, the susceptor ring 130 can be embedded inside the filling 22 in the pod 120 according to the second embodiment. In this case, there is a possibility that the flavor source included in a part of the filling 22 overlaid on the susceptor ring 130 might impede the advancement of the aerosol flow P2. In light thereof, in the pod 120 according to the second embodiment, the substantially cylindrical through-hole 122 extending along the axial direction of the pod 120 and the housing 11 is formed in the filling 22. An inner edge portion 22C of the filling 22 connected to a side surface 122A of the through-hole 122 is exposed to the inner space in the pod 120. Further, the filling 22 is heated and the aerosol is generated near the susceptor ring 130 that generates heat, and therefore the inner edge portion 22C of the filling 22 intersects with the direction in which the generated aerosol is drawn according to the user's inhalation at least near the susceptor ring 130. The inner edge portion 22C of the filling 22 is one example of the exposed surface according to the present disclosure. The susceptor ring 130 is one example of the susceptor element according to the present disclosure.

**[0093]** The susceptor ring 130 is configured to have a hollow shape similarly to the susceptor ring 30 according to the first embodiment illustrated in Figs. 3A to Fig. 4. As illustrated in Fig. 10B, the hollow portion of the susceptor ring 130 disposed in the pod 120 is in communication with the through-hole 122. More specifically, the hollow por-

tion of the susceptor ring 130 does not enter inside the filling 22 beyond the through-hole 122. Fig. 10B illustrates the example in which the horizontal plane of the through-hole 122 is substantially congruent with the hollow portion of the susceptor ring 130, but the hollow portion of the susceptor ring 130 may be contained inside the horizontal plane of the through-hole 122. In other words, the surface of the susceptor ring 130 on the through-hole 122 side may protrude beyond the surface of the filling 22 in a direction toward the center of the through-hole 122. Therefore, in the pod 120 according to the second embodiment, the susceptor ring 130 is in contact with the inner edge portion 22C of the filling 22 and covers a part of the inner edge portion 22C of the filling 22.

**[0094]** As illustrated in Fig. 10, in the flavor inhalation device 110, the induction coil 16 is arranged so as to extend to align with the susceptor ring 130 and surround the susceptor ring 130 therearound when the pod 120 is contained inside the housing 11.

**[0095]** Further, as illustrated in Fig. 11, the pod 120 according to the second embodiment can be provided with a plurality of susceptor rings 130 along the direction in which the through-hole 122 extends. Fig. 11 illustrates a susceptor ring 130A arranged in abutment with the upper end surface 22A of the filling 22 and a susceptor ring 130B arranged in abutment with the lower end surface 22B of the filling 22 as one example.

**[0096]** As illustrated in Fig. 11, in the flavor inhalation device 110 according to the second embodiment, the induction coil 16A is arranged so as to extend to align with the susceptor ring 130A and the induction coil 16B is arranged so as to extend to align with the susceptor ring 130B when the pod 120 is contained inside the housing 11.

**[0097]** As described above, the control unit 116 of the flavor inhalation device 110 inductively heats the susceptor ring 130 by controlling the heating unit 117 to supply an alternating current to the induction coil 16 based on the heating profile stored in the storage unit 114. Especially in the case of the example illustrated in Fig. 11, the control unit 116 inductively heats the susceptor ring 130A and the susceptor ring 130B by supplying an alternating current to each of the induction coil 16A and the induction coil 16B based on the heating profile. The heating profile can be defined in such a manner that the heating is controlled in manners different from each other for the induction coil 16A and the induction coil 16B. More specifically, the heating profile can be set in such a manner that the susceptor ring 130A and the susceptor ring 130B are heated at different temperatures, different timings, and/or the like.

**[0098]** Especially, the heating profile can be set in such a manner that the susceptor ring 130A located on the upper side is heated first and the susceptor ring 130B located on the lower side is heated later than that. If the lower susceptor ring 130B is heated first, the aerosol generated on the lower side of the filling 22 might pass through an unheated region to thus be cooled and solidified, thereby impeding the advancement of the aerosol flow P2.

**[0099]** The flavor inhalation device 110 has been described as including the single susceptor ring 130 or the two susceptor rings 130A and 130B in the above description, but the number of susceptor rings is not limited thereto. The flavor inhalation device 110 can include three or more susceptor rings. In this case, induction coil sets 16 corresponding to the susceptor rings, respectively, are provided. Further, in this case, the heating profile stored in the storage unit 114 can be set in such a manner that the heating is controlled in manners different from one another for the respective susceptor rings, so as to realize desirable induction heating.

**[0100]** The pod 120 according to the second embodiment can also include the plurality of vent holes 28A extending through the bottom wall 28 similarly to the modification of the first embodiment illustrated in Fig. 8, although the illustration and the detailed description thereof are omitted herein.

**[0101]** (Operations of Second Embodiment) In the pod 120 according to the second embodiment, the filling 22 is provided with the through-hole 122 extending along the axial direction of the pod 120 and the housing 11, and the inner edge portion 22C of the filling 22 connected to the side surface 122A of the through-hole 122 is exposed to the inner space in the pod 120 and also intersects with the aerosol flow P2 generated in the filling 22 and advancing upward in the through-hole 122 at least near the susceptor ring 130 that generates heat. Then, the through-hole 122 is in communication with the hollow portion of the hollow shape of the susceptor ring 130. Therefore, according to the second embodiment, in the case where the susceptor ring 130 is embedded inside the filling 22, a passage through which the aerosol flows can be secured with the aid of the through-hole 122 of the filling 22 and the hollow portion of the susceptor ring 130, allowing the user to favorably inhale the flavor.

**[0102]** Further, the pod 120 according to the second embodiment is provided with the plurality of susceptor rings 130A and 130B along the through-hole 122 of the filling 22. Therefore, according to the second embodiment, the flexibility of the induction heating can be improved by heating the plurality of susceptor rings 130A and 130B individually.

**[0103]** In the flavor inhalation device 110 according to the second embodiment, the plurality of induction coils 16A and 16B is disposed at positions aligned along the axial direction substantially perpendicular to the bottom wall 28 with the plurality of susceptor rings 130A and 130B arranged along the direction in which the through-hole 122 of the filling 22 extends, respectively. Therefore, according to the second embodiment, the flavor inhalation device can be provided with improved flexibility of the induction heating by inductively heating the corresponding susceptor rings 130A and 130B using the plurality of induction coils 16A and 16B.

**[0104]** Further, in the flavor inhalation device 110 according to the second embodiment, the control unit 116 controls the heating in manners different from each other for the plurality of induction coils 16A and 16B corresponding to the plurality of susceptor rings 130A and 130B arranged along the direction in which the through-hole 122 of the filling 22 extends, respectively. Therefore, according to the second embodiment, the flavor inhalation device 110 can perform a heating method appropriate from the perspective of preventing the filling 22 from boiling over and allowing the user to favorably inhale the flavor.

**[0105]** Further, in the flavor inhalation device 110 according to the second embodiment, the induction coil 16A located opposite from the bottom wall 28 along the axial direction is heated more rapidly than the induction coil 16B located on the bottom wall 28 side. Therefore, according to the second embodiment, the filling 22 near the bottom wall 28 can be prevented from being heated first and then cooled and solidified, thereby impeding the advancement of the aerosol flow.

**[0106]** [Third Embodiment] In the following description, a third embodiment of the present disclosure will be described with reference to the drawings. The third embodiment will be described, assigning the same reference numerals to similar or corresponding portions to the above-described first embodiment and second embodiment and omitting the descriptions thereof.

**[0107]** Fig. 12 is a perspective view illustrating the internal structure of a pod 220 according to the third embodiment. The illustration of the seal member 24 is omitted in Fig. 12 for convenience of the description. Fig. 13 is a cross-sectional view of an upper portion of the pod 220 taken along a cross section perpendicular to the bottom wall 28. The pod 220 is one example of the flavor source filling container according to the present disclosure.

**[0108]** The pod 220 according to the third embodiment is different from the pod 20 according to the first embodiment illustrated in Fig. 3A in terms of the provision of a porous member 230 on the upper side of the susceptor ring 30 (on the opposite side from the bottom wall 28). The porous member 230 includes an aerosol source. The porous member 230 may be made from any material capable of including the aerosol source, and one example thereof is a paper filter. Examples of the aerosol source include glycerin, propylene glycol, triacetin, 1,3-butanediol, and mixtures thereof.

**[0109]** The aerosol flow generated from the filling 22 heated by the induction heating of the susceptor ring 30 passes through the porous member 230, and this leads to a further increase in the aerosol amount reaching inside the user's mouth. The filling 22 can be prevented from boiling over due to the provision of the porous member 230 above the filling 22 (the user's inhalation port side).

**[0110]** As illustrated in Fig. 12, the porous member 230 can be configured to have a hollow shape. Then, the porous member 230 can be configured in such a manner that the hollow portion thereof is placed in communication with the hollow portion of the susceptor ring 30.

**[0111]** Further, as illustrated in Fig. 13, the porous member 230 can also be configured in such a manner that an outer annular portion 230A thereof extends toward the bottom wall 28 of the pod 220 and is placed in contact with the upper end surface 22A of the filling 22. The porous member 230 is arranged above the filling 22 (the user's inhalation port side) and covers the filling 22 in contact with a region of the upper end surface 22A not covered with the susceptor ring 130, and this can contribute to further preventing the filling 22 from boiling over.

**[0112]** (Operations of Third Embodiment) The pod 220 according to the third embodiment includes the porous member 230 located opposite of the susceptor ring 30 from the bottom wall 28 and including the aerosol source. Therefore, according to the third embodiment, after passing through the filling 22, the aerosol flow further passes through the porous member 230 including the aerosol source, thereby allowing the user to inhale a larger amount of aerosol.

**[0113]** In the pod 220 according to the third embodiment, the porous member 230 is configured to have a hollow shape, and the hollow portion of the hollow shape of the porous member 230 is in communication with the hollow portion of the hollow shape of the susceptor ring 30. Therefore, according to the third embodiment, the aerosol amount can be increased with the aid of the porous member 230 including the aerosol source, and a passage through which the aerosol flows can also be secured with the aid of the hollow portion of the porous member 230 and the hollow portion of the susceptor ring 30, allowing the user to favorably inhale the flavor.

**[0114]** Further, in the pod 220 according to the third embodiment, the outer annular portion 230A of the porous member 230 including the aerosol source is in contact with the upper end surface 22A of the filling 22. Therefore, according to the third embodiment, the susceptor ring 30 indirectly heats the aerosol source included in the porous member 230 via the filling 22, and thus the aerosol amount can be further increased.

**[0115]** [Modification of Third Embodiment] In the following description, a modification of the third embodiment will be described. The modification will be described, assigning the same reference numerals to similar or corresponding portions to the above-described third embodiment and omitting the descriptions thereof.

**[0116]** Fig. 14 is a perspective view illustrating the inner structure of the pod 220 according to the modification of the third embodiment. The illustration of the seal member 24 is omitted in Fig. 14 for convenience of the description.

**[0117]** In the housing 11 according to the modification of the third embodiment, the air flowing in via the air inlet 14 illustrated in Fig. 2 enters inside the pod 220 via the bottom wall 28 of the pod 220, similarly to the modification of the first embodiment. As described above, the airflow P1 is formed as a flow directed to the mouthpiece 18 by passing through inside the filling 22 in this case.

**[0118]** As illustrated in Fig. 14, the pod 220 according to the modification of the third embodiment includes the plurality of vent holes 28A extending through the bottom wall 28, similarly to the modification of the first embodiment illustrated in Fig. 8. The air flowing into the housing 11 via the air inlet 14 enters inside the pod 220 via these vent holes 28A.

**[0119]** Further, as illustrated in Fig. 14, the pod 220 according to the modification of the third embodiment includes a susceptor ring 30B in abutment with the lower end surface 22B of the filling 22 and a porous member 230B disposed on the lower side of the susceptor ring 30B (on the opposite side from the upper end surface 22A of the filling 22) in addition to the configuration of the pod 220 according to the third embodiment illustrated in Fig. 12.

(Operations of Modification of Third Embodiment)

**[0120]** In the modification of the third embodiment, the plurality of vent holes 28A is provided through the bottom wall 28 of the pod 220. Therefore, according to the modification of the third embodiment, an air flow path usable to introduce external air from outside the pod 220 is formed, and the aerosol is generated by a larger amount.

**[0121]** Further, in the pod 220 according to the modification of the third embodiment, the further susceptor ring 30B in abutment with the lower end surface 22B of the filling 22 is provided in addition to the susceptor ring 30 in abutment with the upper end surface 22A of the filling 22. Therefore, according to the modification of the third embodiment, heating efficient and contributive to preventing the filling 22 from boiling over can be realized by conducting the induction heating locally above and below the filling 22.

**[0122]** [Fourth Embodiment] In the following description, a fourth embodiment of the present disclosure will be described with reference to the drawings. Fig. 15 is a cross-sectional view illustrating the internal configuration of a pod 320 according to the fourth embodiment. Fig. 16A is a perspective view illustrating the upper surface of the pod 320. Fig. 16B is a top view of a mesh cover 330. The illustration of the seal member 24 is omitted in Figs. 15 and 16A for convenience of the description.

**[0123]** All the pod 20 according to the above-described first embodiment, the pod 120 according to the above-described second embodiment, and the pod 220 according to the above-described third embodiment are made from an insulating material, and themselves do not function as a susceptor for the induction heating. On the other hand, the pod 320 according to the fourth embodiment is made from a conductive material, and functions as a susceptor.

**[0124]** The pod 320 illustrated in Fig. 15, including the bottom wall 28, is made from a conductive material. Therefore, when an alternating current flows in an induction coil 316 arranged around the pod 320, the pod 320 itself is inductively heated to cause the filling 22 to generate heat.

**[0125]** As described above, when the filled container is heated by the induction heating, rapid and efficient heating can be achieved compared to the resistive heating type but the solid or quasi-solid filling 22 may be excessively heated due to the rapid increase in the temperature and boil over from the filled container.

**[0126]** In light thereof, in the pod 320 according to the fourth embodiment, the mesh cover 330 is disposed above the filling 22 (on the opposite side of the pod 320 from the bottom wall 28) so as to cover the filling 22, thereby preventing the filling 22 from gushing out of the pod 320 due to sudden bumping of the filling 22 when the pod 320 is inductively heated.

**[0127]** The mesh cover 330 may be made from any material inductively unheatable or less inductively heatable than the pod 320 when an alternating current is supplied to the induction coil 316, and, for example, can be made from aluminum. The electric resistivity of aluminum has a smaller value compared to metal such as iron, and therefore less Joule heat is generated in the mesh cover 330 even when an alternating current flows in the induction coil 316 and eddy currents are induced in the aluminum mesh cover 330. Alternatively, an insulating material is also usable as the material of the mesh cover 330. Alternatively, a material having low magnetic permeability may be used as the material of the mesh cover 330. The magnetic permeability having a low value makes it difficult for a magnetic flux to pass therethrough and for eddy currents to be induced, thereby resulting in a reduction in the Joule heat generated in the mesh cover 330.

**[0128]** The pod 320 according to the fourth embodiment can also be provided with the plurality of vent holes 28A extending through the bottom wall 28 similarly to the modification of the first embodiment illustrated in Fig. 8, although the illustration and the detailed description thereof are omitted herein.

**[0129]** (Operations of Fourth Embodiment) In the pod 320 according to the fourth embodiment, the pod 320 is made from a conductive material and functions as a susceptor for the induction heating, and, along therewith, the mesh cover 330 inductively unheatable or inductively less heatable is arranged above the filling 22 including the flavor source and the aerosol source contained in the pod 320. Therefore, according to the fourth embodiment, the filling 22 can be prevented from boiling over from the pod 320 due to the gush caused by the sudden bumping of the filling 22 while being rapidly and efficiently heated by the induction heating.

**[0130]** [Fifth Embodiment] In the following description, a fifth embodiment of the present disclosure will be described with reference to the drawings. Fig. 17 is a cross-sectional view illustrating the internal configuration of a pod 420 according to the fifth embodiment. The illustration of the seal member 24 is omitted in Fig. 17 for convenience of the description.

**[0131]** The pod 420 according to the fifth embodiment is made from a conductive material and functions as a susceptor, similarly to the pod 320 according to the fourth embodiment. Therefore, when an alternating current flows in an induction coil 416 arranged around the pod 420, the pod 420 itself is inductively heated to cause the filling 22 to generate heat.

**[0132]** In the pod 420 according to the fifth embodiment, a porous cover 430 including an aerosol source is provided instead of the mesh cover 330 according to the fourth embodiment to cover the filling 22 thereabove, thereby preventing the filling 22 from gushing out of the pod 420 due to sudden bumping of the filling 22 when the pod 420 is inductively heated.

**[0133]** The material of the porous cover 430 is a paper filter as one example, but may be any material capable of including the aerosol source and also inductively unheatable when an alternating current is supplied to the induction coil 416.

**[0134]** (Operations of Fifth Embodiment) In the pod 420 according to the fifth embodiment, the pod 420 is made from a conductive material and functions as a susceptor for the induction heating, and, along therewith, the porous cover 430 is arranged above the filling 22 including the flavor source and the aerosol source contained in the pod 420. Therefore, according to the fifth embodiment, the filling 22 can be prevented from boiling over from the pod 420 due to the gush caused by the sudden bumping of the filling 22 while being rapidly and efficiently heated by the induction heating.

**[0135]** Further, the pod 420 according to the fifth embodiment allows the user to feel a favorable inhalation sensation even when the aerosol source is included in the filling 22 contained in the pod 420 at a lower ratio.

**[0136]** Having described each of the embodiments and the modifications of the present disclosure, the present disclosure shall not be limited to the above-described embodiments and modifications, and can be modified in various manners within the scope of the technical idea disclosed in the claims, specification, and drawings. Especially, each of the embodiments and the modifications can be combined with each other within a range not creating a contradiction with each other. Note that any shape and material not directly described or illustrated in the specification or drawings are still within the scope of the technical idea of the present disclosure insofar as they allow the present disclosure to achieve the operations thereof.

REFERENCE SIGNS LIST

**[0137]**

| | |
|---|---|
| 10 | flavor inhalation device |
| 11 | housing |
| 11A | cavity |
| 14 | air inlet |
| 16 | induction coil |
| 16A | induction coil |
| 16B | induction coil |
| 18 | mouthpiece |
| 18A | protrusion portion |
| 18B | inhalation port |
| 20 | pod |
| 22 | filling |
| 22A | upper end surface |
| 22B | lower end surface |
| 22C | inner edge portion |
| 24 | seal member |
| 26 | protrusion member |
| 28 | bottom wall |
| 28A | vent hole |
| 30 | susceptor ring |
| 30B | susceptor ring |
| 32 | fixation pin |
| 34 | protrusion pin |
| 36 | cylindrical portion |
| 110 | flavor inhalation device |
| 111 | power source unit |
| 112 | sensor unit |
| 113 | notification unit |
| 114 | storage unit |
| 115 | communication unit |
| 116 | control unit |
| 117 | heating unit |
| 120 | pod |
| 122 | through-hole |
| 122A | side surface |
| 130 | susceptor ring |
| 130A | susceptor ring |
| 130B | susceptor ring |
| 230 | porous member |
| 230A | outer annular portion |
| 230B | porous member |
| 316 | induction coil |
| 320 | pod |
| 330 | mesh cover |
| 416 | induction coil |
| 420 | pod |
| 430 | porous cover |
| P1 | airflow |
| P2 | aerosol flow |

**Claims**

**1.** A flavor source filling container, comprising:

a bottom wall forming a bottom portion; and
a susceptor element,
the flavor source filling container containing a filling including a flavor source and an aerosol source therein,
wherein the filling has an exposed surface that is a surface exposed to an inner space in the flavor-filled container and intersecting with a direction in which a generated aerosol is drawn

by inhalation of a user, and
wherein the susceptor element is disposed so as to be placed in contact with the exposed surface of the filling and cover at least a part of the exposed surface.

**2.** The flavor source filling container according to claim 1, wherein the susceptor element is in abutment with an upper end portion of the filling, the upper end portion being located opposite from the bottom wall.

**3.** The flavor source filling container according to claim 1 or 2, wherein a porous member including an aerosol source is provided at a position opposite of the susceptor element from the bottom wall.

**4.** The flavor source filling container according to claim 3, wherein the porous member is configured to have a hollow shape.

**5.** The flavor source filling container according to claim 3 or 4, wherein a part of the porous member is in contact with the filling.

**6.** The flavor source filling container according to claim 2 or any one of claims 3 to 5 according to claim 2, further comprising a retaining member retaining the susceptor element on the upper end portion of the filling.

**7.** The flavor source filling container according to claim 6, wherein the retaining member is a fixation member extending through the susceptor element and inserted in the filling.

**8.** The flavor source filling container according to claim 6, wherein the retaining member is an insertion member forming a part of the susceptor element and inserted in the filling.

**9.** The flavor source filling container according to claim 6, further comprising a sealing cover sealing an end portion of the flavor source filling container opposite from the bottom wall,
wherein the retaining member is a pressing portion provided between the susceptor element and the sealing cover.

**10.** The flavor source filling container according to claim 2 or any one of claims 3 to 9 according to claim 2, further comprising another susceptor element in abutment with a lower end portion of the filling from outside, the lower end portion being located opposite from the upper end portion

**11.** The flavor source filling container according to any one of claims 1 to 10, wherein the susceptor element is configured to have a hollow shape.

**12.** The flavor source filling container according to claim 11, wherein the filling is provided with a through-hole,

wherein an inner edge portion of the filling that is connected to a side surface of the through-hole forms a part of the exposed surface, and
wherein the through-hole is in communication with a hollow portion of the hollow shape of the susceptor element.

**13.** The flavor source filling container according to claim 12, wherein the susceptor element includes a plurality of susceptor elements arranged along a direction in which the through-hole extends.

**14.** The flavor source filling container according to any one of claims 1 to 13, further comprising a vent hole extending through the bottom wall.

**15.** A flavor inhalation device comprising:
the flavor source filling container according to any one of claims 1 to 14.

**16.** The flavor inhalation device according to claim 15, wherein a coil is provided at a position aligned with the susceptor element along an axial direction substantially perpendicular to the bottom wall.

**17.** A flavor inhalation device comprising:

the flavor source filling container according to claim 10,
wherein a plurality of coils is provided at positions aligned with the plurality of susceptor elements, respectively, along an axial direction substantially perpendicular to the bottom wall.

**18.** The flavor inhalation device according to claim 17, further comprising a control unit,
wherein the control unit controls heating in manners different from each other for the plurality of coils.

**19.** The flavor inhalation device according to claim 18, wherein, among the plurality of coils, a coil located opposite from the bottom surface along the axial direction is heated more rapidly than a coil located on the bottom surface side.

**20.** The flavor inhalation device according to any one of claims 15 to 19, further comprising a removable mouthpiece,
wherein the mouthpiece includes a protrusion portion in abutment with the susceptor element.

FIG. 1

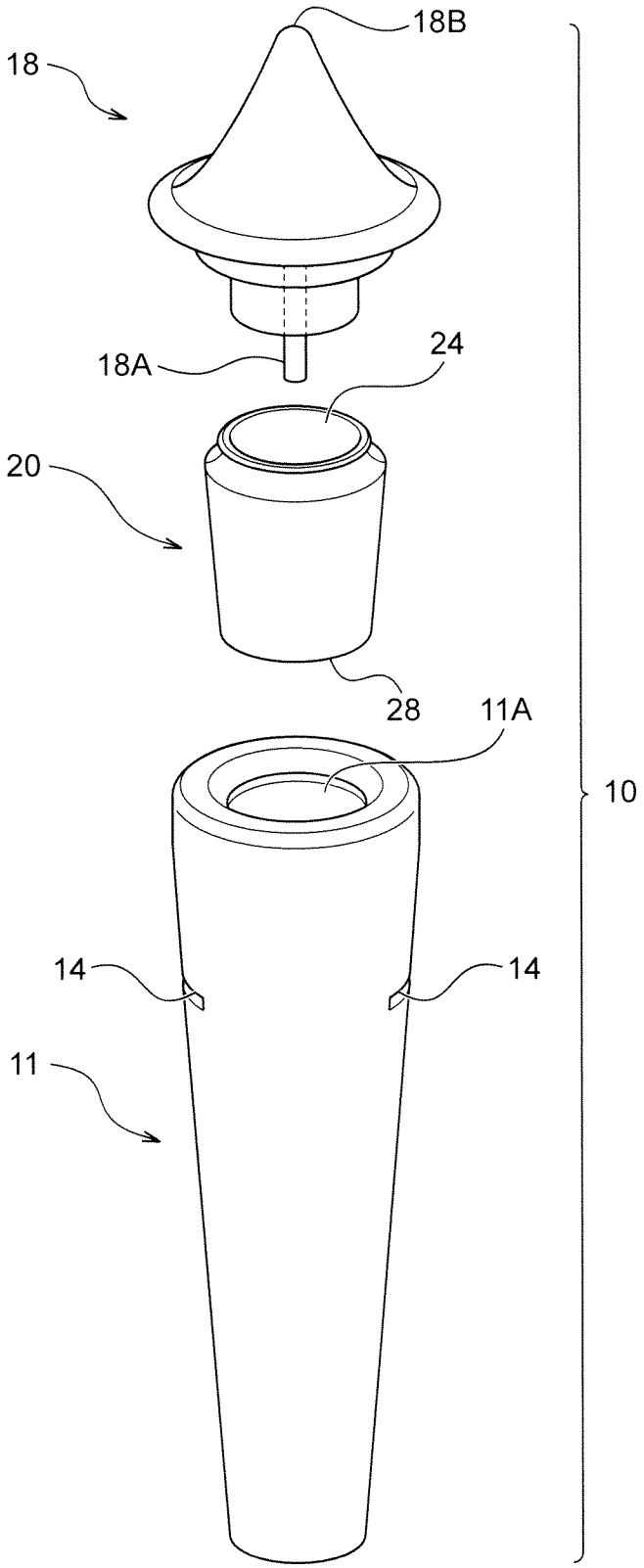


FIG. 2

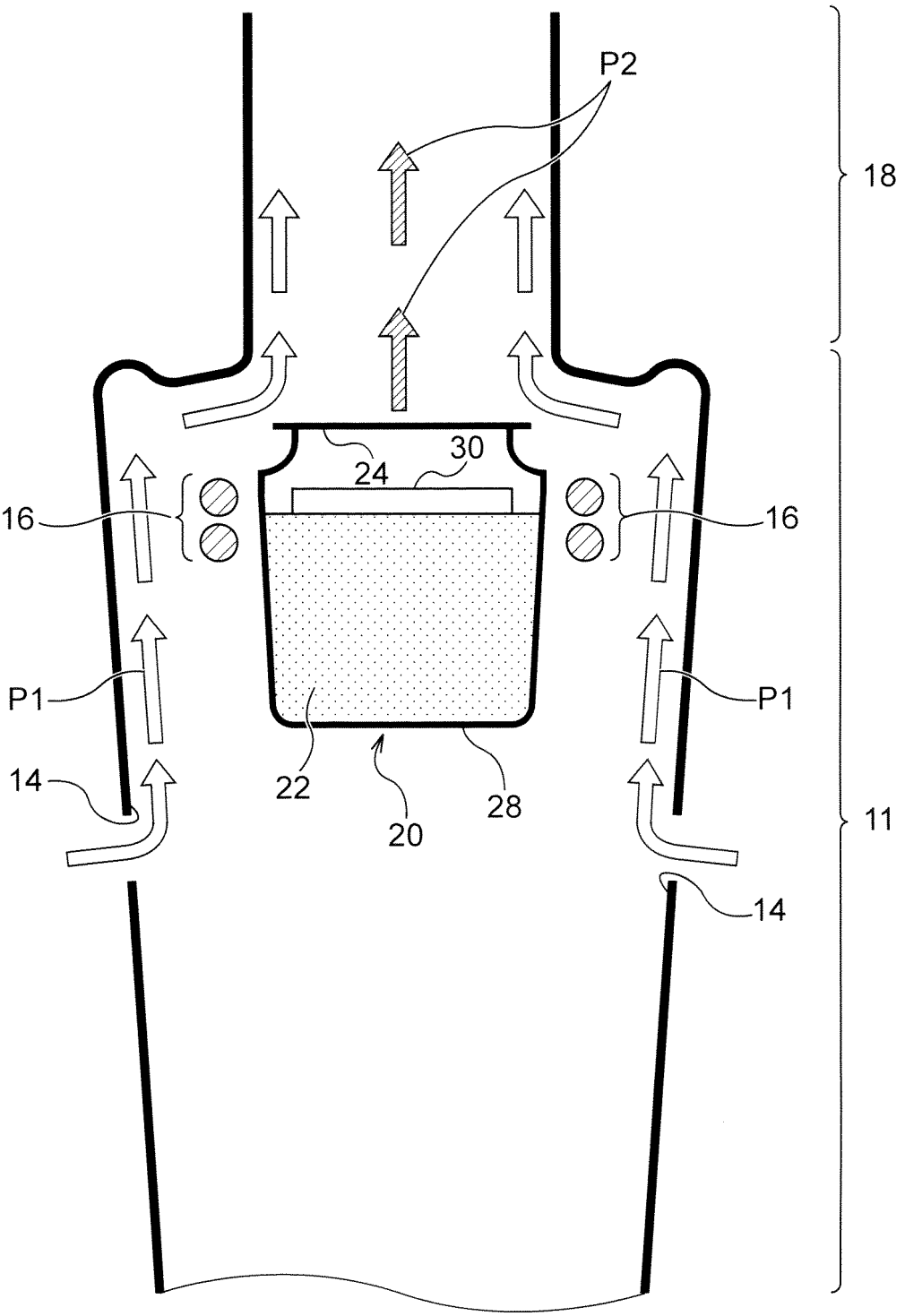


FIG. 3A

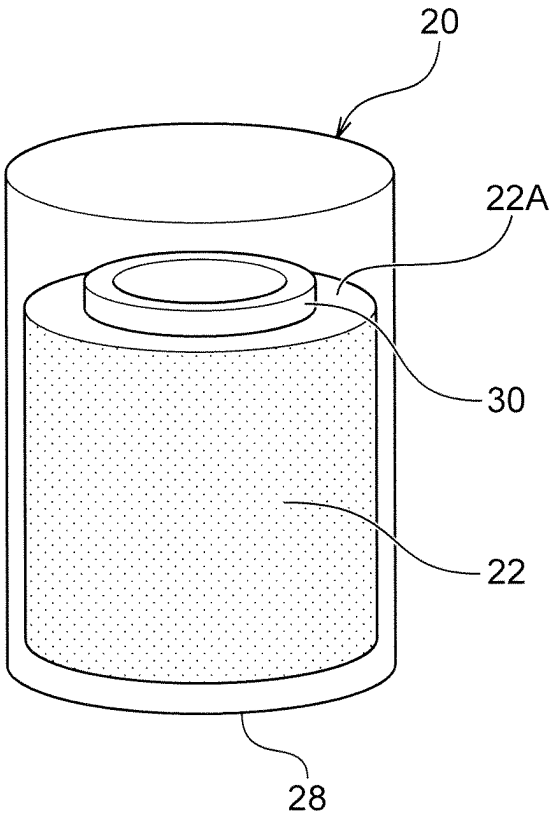



FIG. 3B

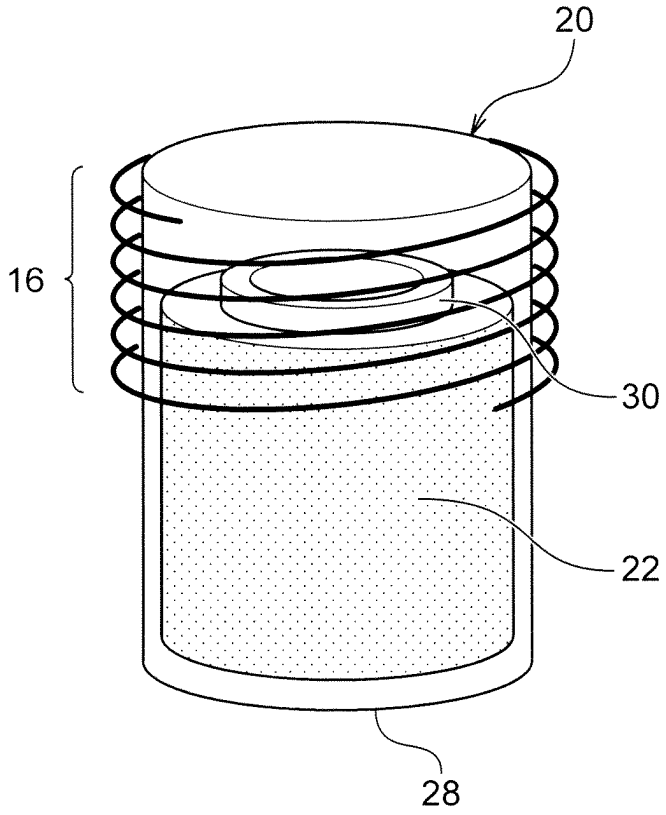


FIG. 4

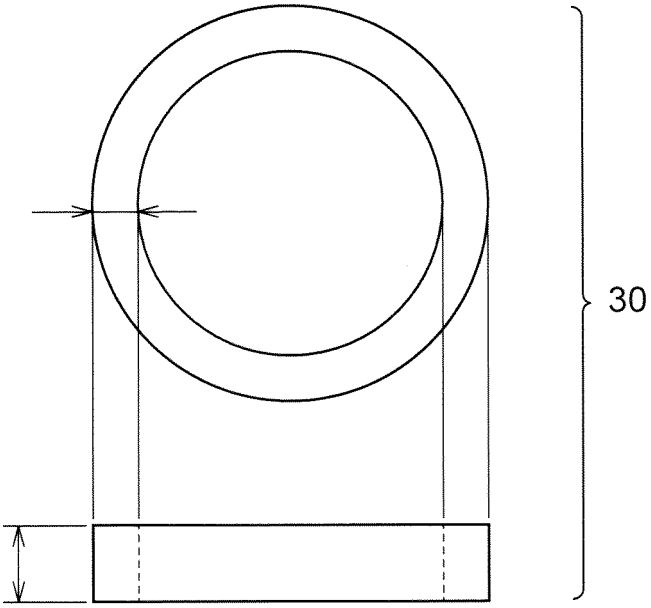



FIG. 5A

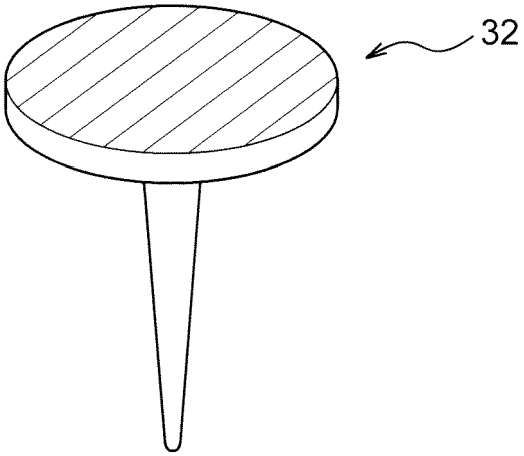


FIG. 5B

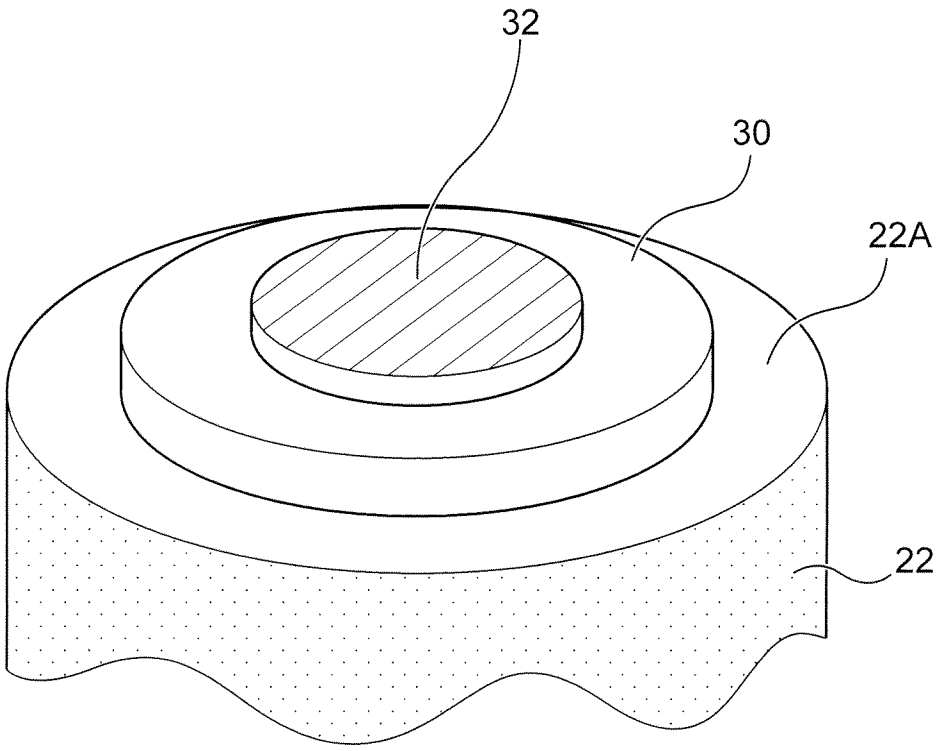



FIG. 6A

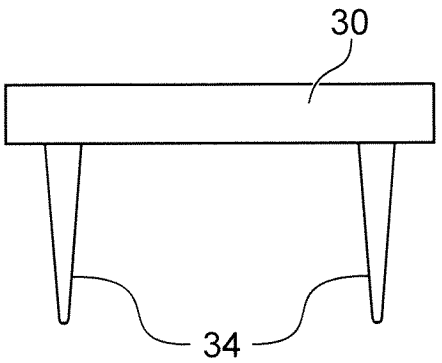


FIG. 6B

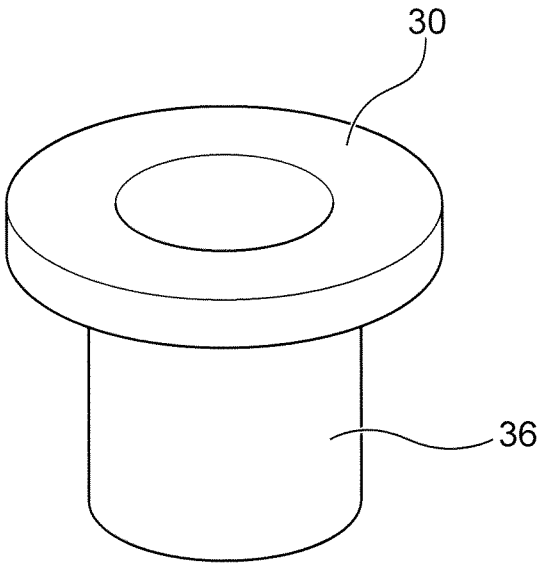



FIG. 7A

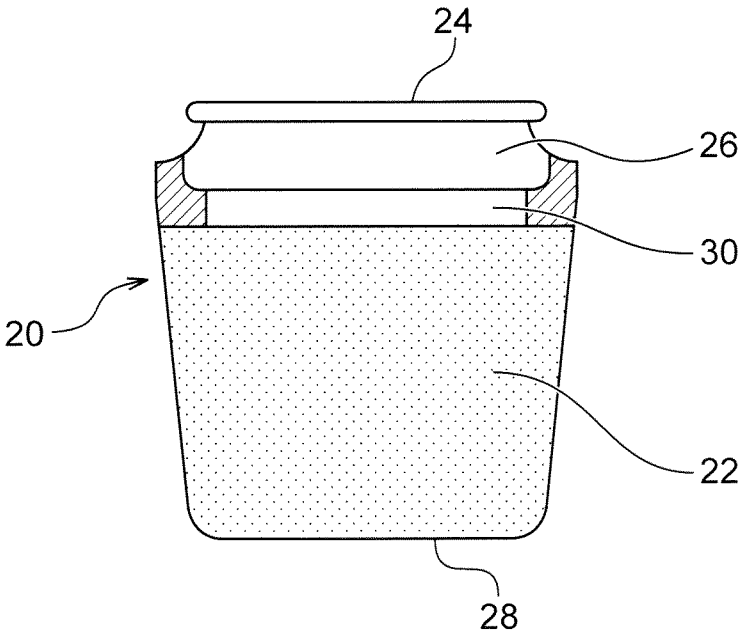


FIG. 7B

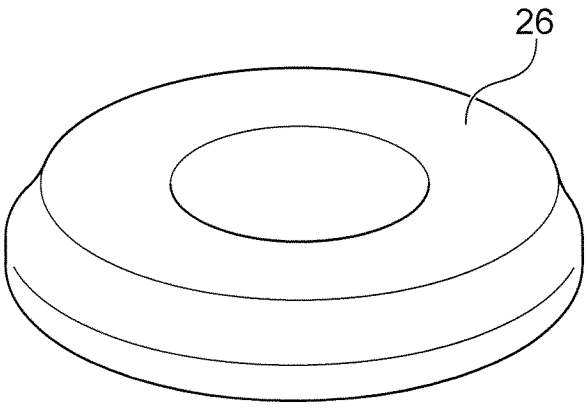


FIG. 8

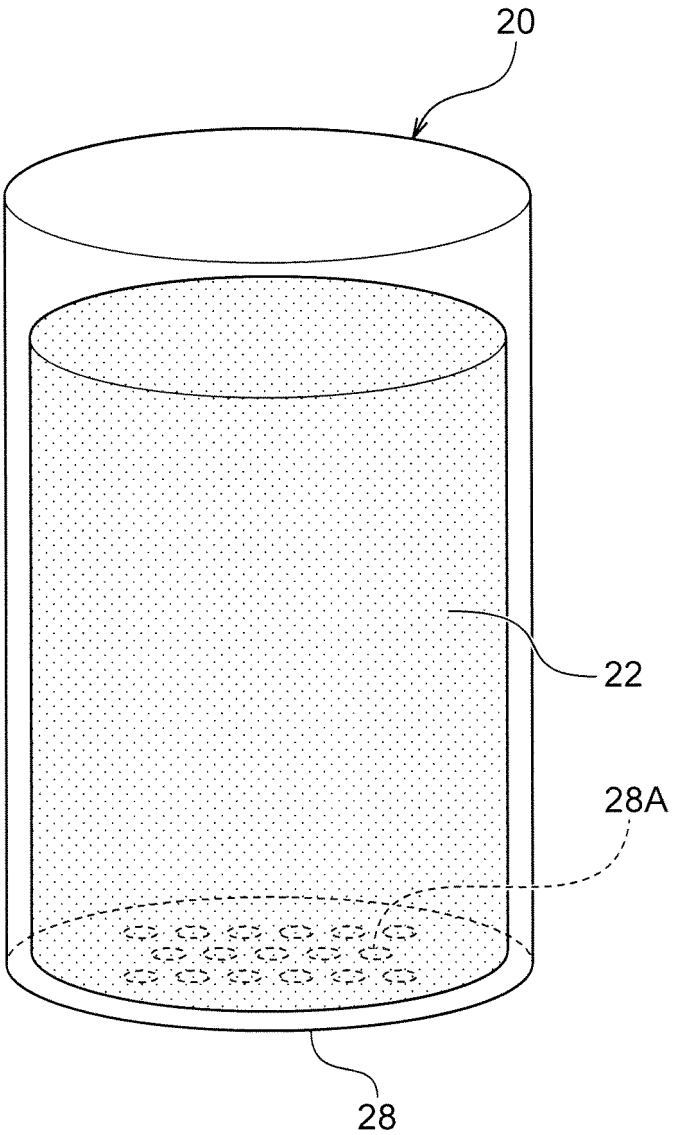


FIG. 9

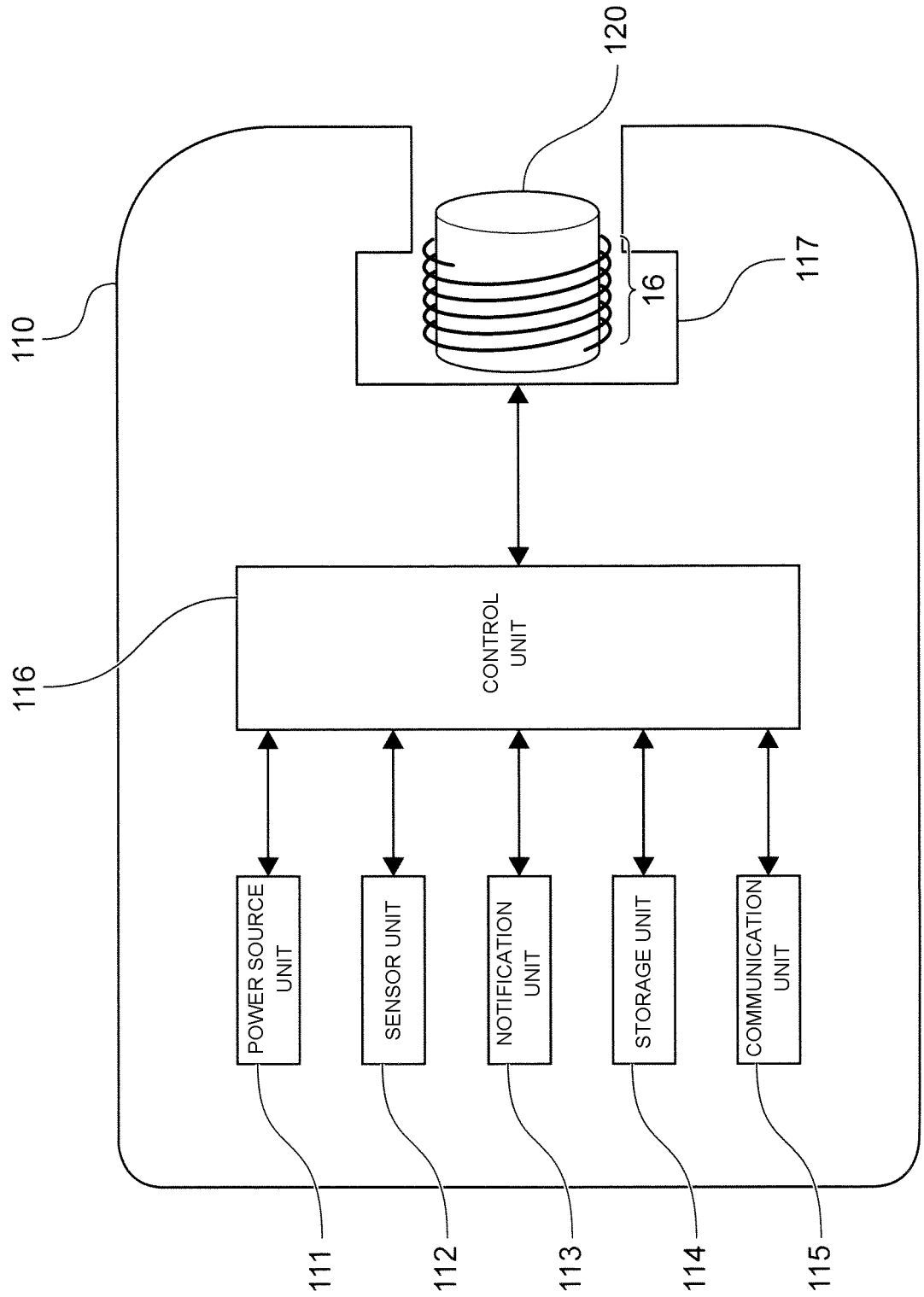

120
110
16
117
116
CONTROL UNIT
POWER SOURCE UNIT
SENSOR UNIT
NOTIFICATION UNIT
STORAGE UNIT
COMMUNICATION UNIT
111
112
113
114
115

FIG. 10A

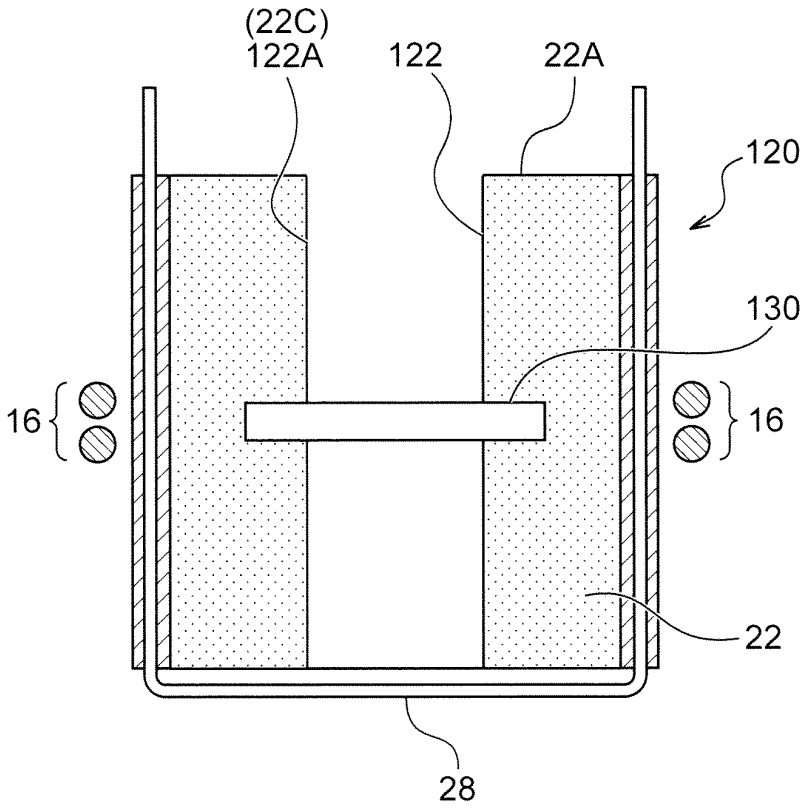



FIG. 10B

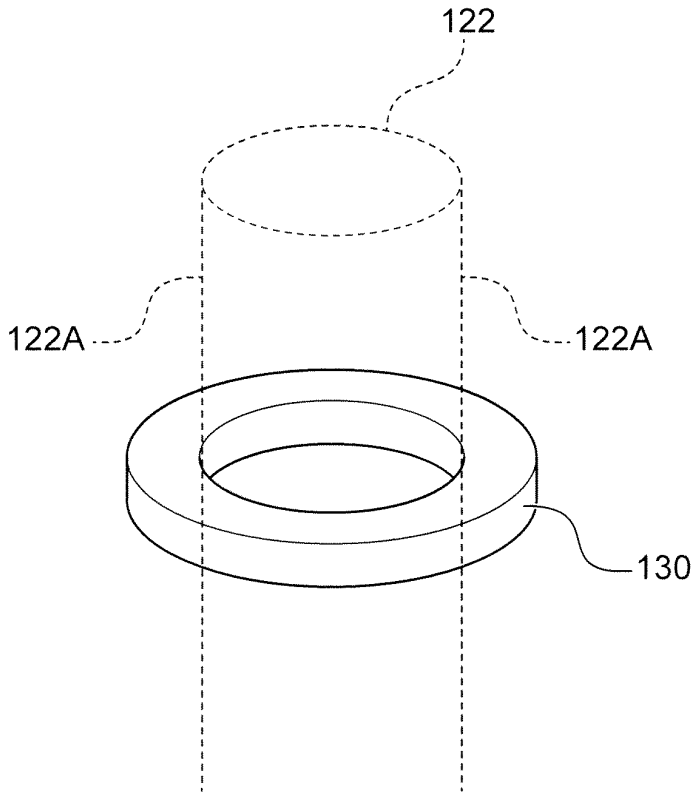


FIG. 11

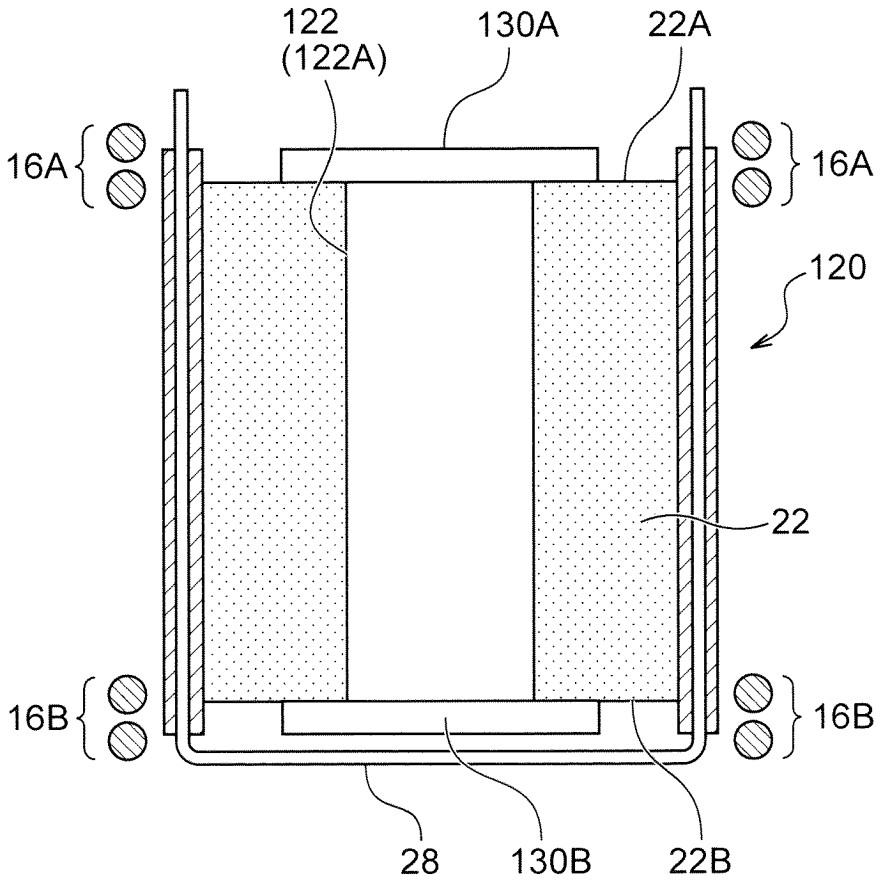


FIG. 12

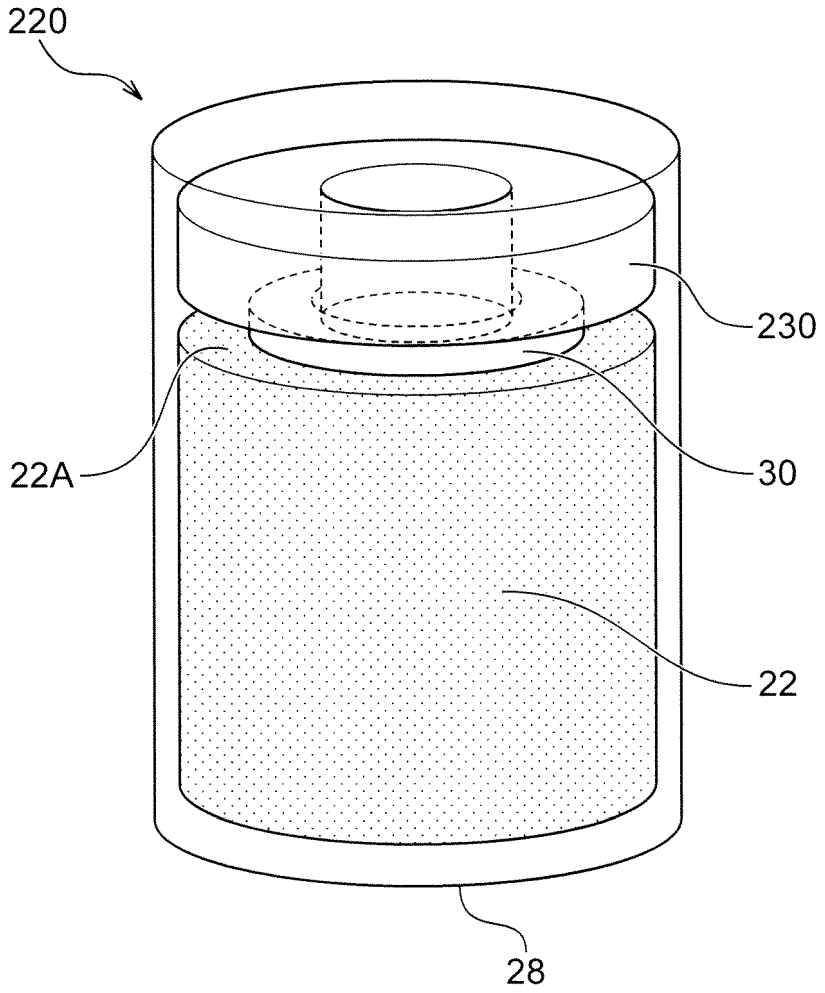



FIG. 13

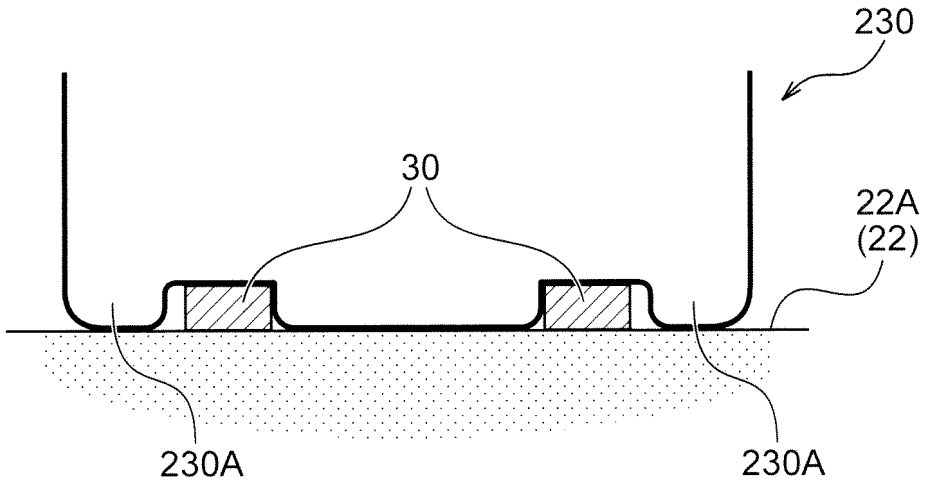


FIG. 14

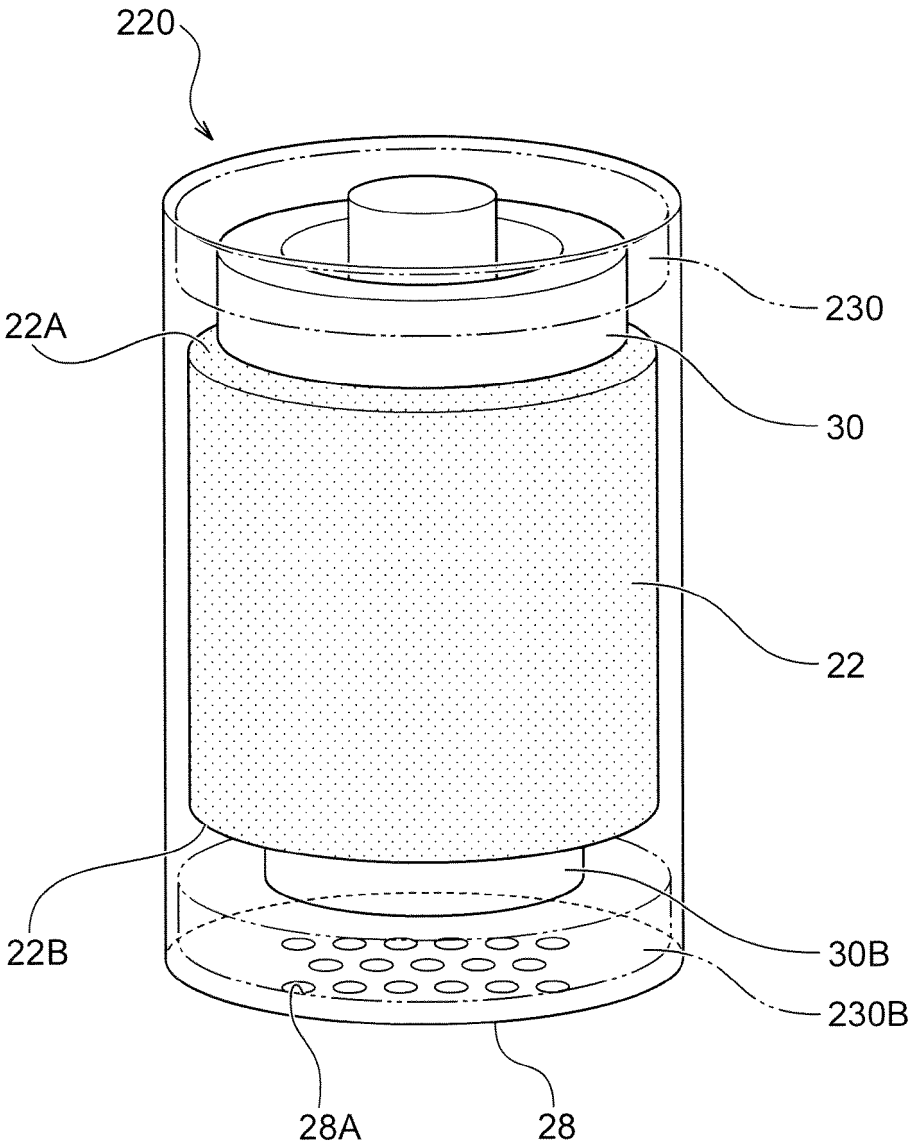


FIG. 15

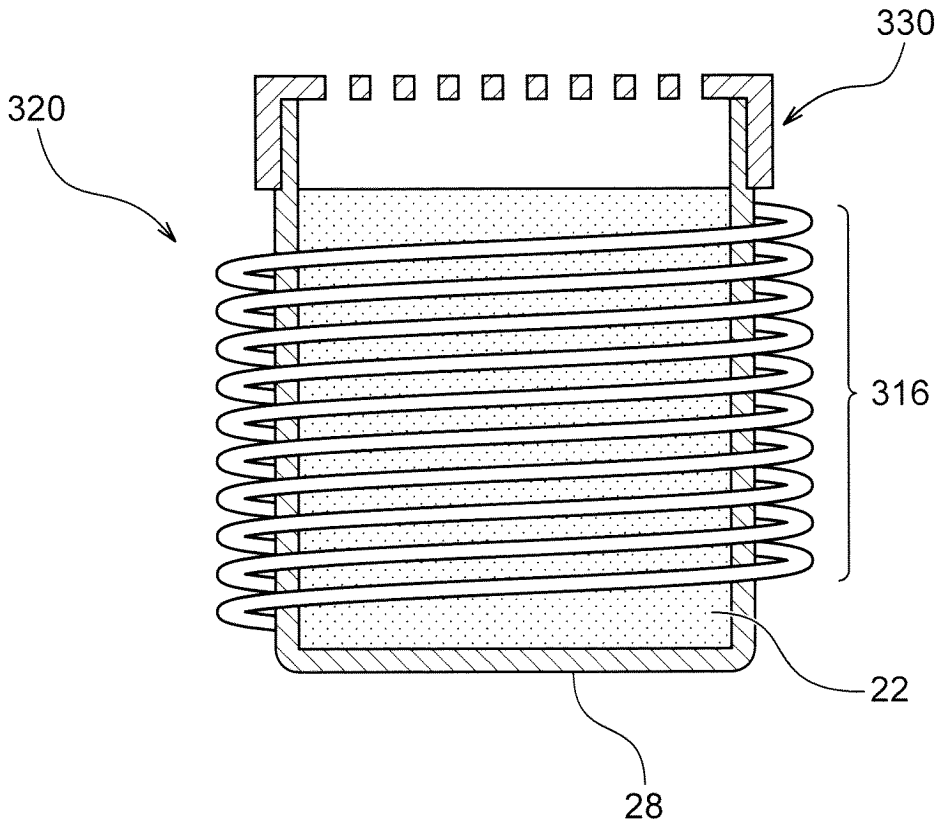


FIG. 16A

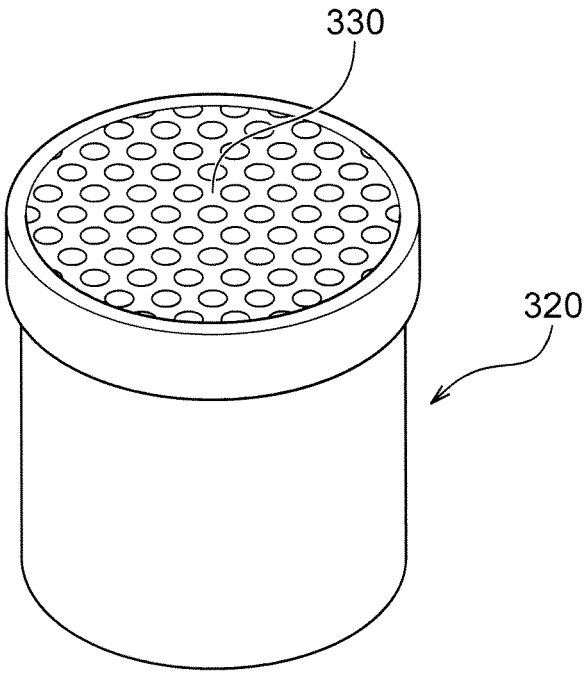



FIG. 16B

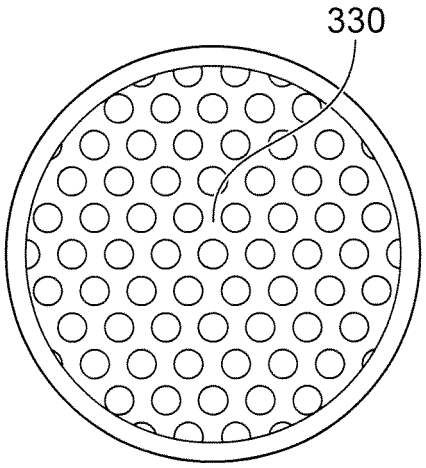
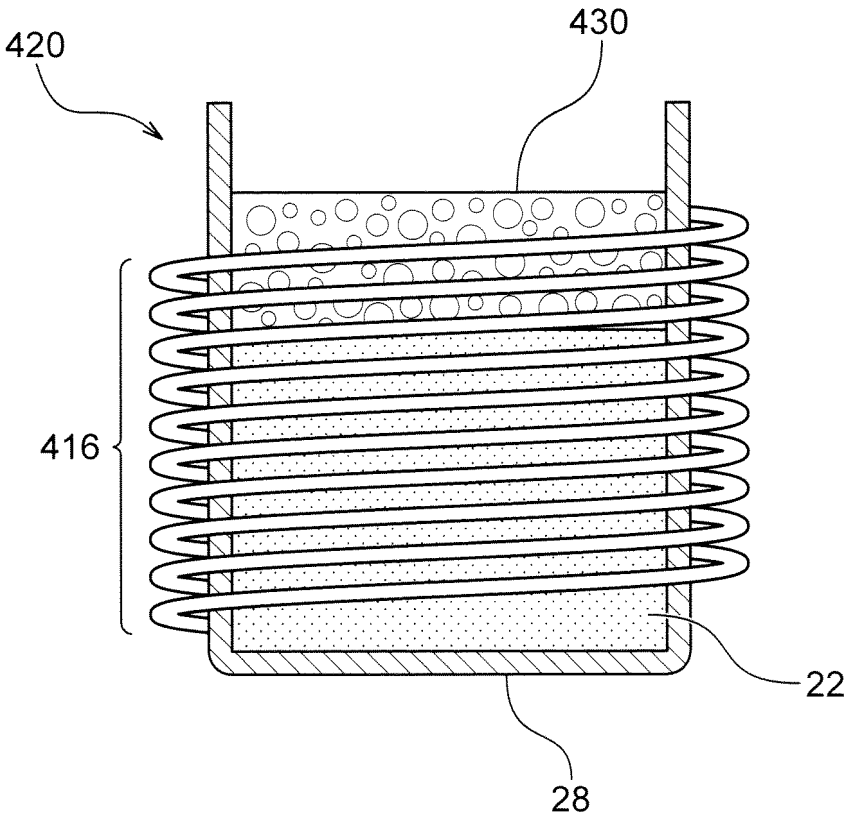


FIG. 17



## INTERNATIONAL SEARCH REPORT

International application No.
**PCT/JP2022/016637**

**A. CLASSIFICATION OF SUBJECT MATTER**

***A24F 40/465***(2020.01)i
FI: A24F40/465

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

A24F40/465

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Published examined utility model applications of Japan 1922-1996
Published unexamined utility model applications of Japan 1971-2022
Registered utility model specifications of Japan 1996-2022
Published registered utility model applications of Japan 1994-2022

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|---|---|---|
| A | WO 2020/044385 A1 (JAPAN TOBACCO INC) 05 March 2020 (2020-03-05) paragraphs [0028]-[0092], fig. 1-6 | 1-20 |
| A | JP 2018-535660 A (PHILIP MORRIS PRODUCTS S.A) 06 December 2018 (2018-12-06) paragraphs [0073]-[0091], fig. 1-2 | 1-20 |
| A | JP 2020-522236 A (PHILIP MORRIS PRODUCTS S.A) 30 July 2020 (2020-07-30) paragraphs [0054]-[0060], fig. 1-4 | 1-20 |

☐ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

* Special categories of cited documents:
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"P" document published prior to the international filing date but later than the priority date claimed

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"&" document member of the same patent family

| Date of the actual completion of the international search | Date of mailing of the international search report |
|---|---|
| **19 April 2022** | **24 May 2022** |
| Name and mailing address of the ISA/JP<br>**Japan Patent Office (ISA/JP)**<br>**3-4-3 Kasumigaseki, Chiyoda-ku, Tokyo 100-8915**<br>**Japan** | Authorized officer<br><br>Telephone No. |

Form PCT/ISA/210 (second sheet) (January 2015)

**INTERNATIONAL SEARCH REPORT**
**Information on patent family members**

International application No.
**PCT/JP2022/016637**

| Patent document cited in search report | Publication date (day/month/year) | Patent family member(s) | Publication date (day/month/year) |
|---|---|---|---|
| WO 2020/044385 A1 | 05 March 2020 | (Family: none) | |
| JP 2018-535660 A | 06 December 2018 | US 2018/0352858 A1<br>paragraphs [0074]-[0092], fig. 1-2<br>EP 3639683 A1<br>CA 3002705 A<br>KR 10-2018-0071322 A | |
| JP 2020-522236 A | 30 July 2020 | US 2018/0352862 A1<br>paragraphs [0024]-[0085], fig. 1-4<br>EP 3634163 A1<br>CN 110621178 A<br>KR 10-2020-0016227 A | |

Form PCT/ISA/210 (patent family annex) (January 2015)

## REFERENCES CITED IN THE DESCRIPTION

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### Patent documents cited in the description


- JP 2021065236 A **[0003]**