(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 3 369 326 A1

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
05.09.2018 Bulletin 2018/36

(21) Application number: **15907273.5**

(22) Date of filing: **29.10.2015**

(51) Int Cl.:
A24F 19/00 *(2006.01)* ***A24F 15/18*** *(2006.01)*
A24F 19/10 *(2006.01)* ***A24F 19/14*** *(2006.01)*
A24F 47/00 *(2006.01)* ***B65D 85/10*** *(2006.01)*

(86) International application number:
PCT/JP2015/080540

(87) International publication number:
WO 2017/072909 (04.05.2017 Gazette 2017/18)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA

(71) Applicant: **Japan Tobacco, Inc.**
Tokyo 105-8422 (JP)

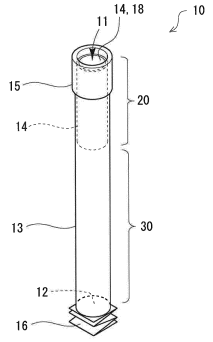
(72) Inventors:
- **SHINOZAKI, Yasuhiro**
  Tokyo 130-8603 (JP)
- **YAMASHITA, Naoto**
  Tokyo 130-8603 (JP)
- **FURUDONO, Yuichi**
  Tokyo 130-8603 (JP)

(74) Representative: **Isarpatent**
Patent- und Rechtsanwälte Behnisch Barth Charles
Hassa Peckmann & Partner mbB
Friedrichstrasse 31
80801 München (DE)

(54) CONTAINER FOR COMBUSTION RESIDUES OF CARBON HEAT SOURCE OF ROD-SHAPED TOBACCO PRODUCTS, BUTT CONTAINER, AND PACKAGE FOR ROD-SHAPED TOBACCO PRODUCTS

(57) A technique relating to a cinder container for a cinder of a carbon heat source in a rod-shaped tobacco product, the technique enabling disposing of a cinder of a carbon heat source in a favorable manner and thereby contributing to easy disposal of a butt of the rod-shaped tobacco product is provided. A cinder container for a cinder of a carbon heat source of a rod-shaped tobacco product, the carbon heat source having a circular column shape and being provided on a distal end side of a rod-shaped body portion that holds a tobacco material includes: an insertion portion including an insertion opening that allows insertion of the cinder of the carbon heat source and an inner circumferential wall provided so as to be continuous with the insertion opening, the inner circumferential wall allowing the cinder of the carbon heat source to be broken off from the rod-shaped body portion; and a storage portion provided so as to be continuous with the insertion portion, the storage portion storing the cinder of the carbon heat source broken off by the inner circumferential wall, and the inner circumferential wall includes a cinder proximal end contact portion brought into contact with a proximal end side of the cinder of the carbon heat source when an operation of tilting the rod-shaped body portion is performed in a state in which the cinder of the carbon heat source is inserted from the insertion opening, and a cinder distal end contact portion provided on an opposite side of the cinder proximal end contact portion in a horizontal cross-section of the insertion portion and brought into contact with a distal end side of the cinder of the carbon heat source.

FIG. 6



EP 3 369 326 A1

Description

Technical Field

[0001] The present invention relates to a cinder container for a cinder (combustion residue) of a carbon heat source of a rod-shaped tobacco product, a butt container and a rod-shaped tobacco product package.

Background Art

[0002] In recent years, non-burn rod-shaped tobacco products that enable enjoying a smoke flavor of tobacco without burning tobacco leaves have been developed. For example, non-burn smoking products each including a heat source, which is a heat generating member attached at a distal end, and a smoke flavor producing material that retains a smoke flavor ingredient in a proper base material and generating aerosol containing the smoke flavor ingredient upon the smoke flavor generating material being not burned but heated by heat resulting from the heat source being burned, have been known. For a heat source attached at a distal end of a non-burn rod-shaped tobacco product of this type, a carbon heat source formed in a circular column shape is often used. For example, the carbon heat source is obtained by molding a mixture containing high-purity carbon particles, a non-combustible additive, an organic or inorganic binder and water.

[0003] In the case of a rod-shaped tobacco product including a carbon heat source, at the end of smoking, the rod-shaped tobacco product is not so shortened as a general cigarette because only the carbon heat source is burned. Therefore, when the butt of the rod-shaped tobacco product is disposed of after smoking, the capacity of a conventional pocket butt container may be insufficient for the butt, causing difficulty in disposing of the butt.

[0004]

[Patent document 1] Japanese Patent Laid-Open No. 9-322750
[Patent document 2] Japanese Patent Laid-Open No. 2007-259839
[Patent document 3] Japanese Patent Laid-Open No. 2004-115123
[Patent document 4] Japanese Patent Laid-Open No. 2001-86973

Summary of Invention

Technical Problem

[0005] The present invention has been made in view of the aforementioned actual circumstances, and an object of the present invention is to provide a technique relating to a cinder container for a cinder of a carbon heat source in a rod-shaped tobacco product, the technique enabling disposing of a cinder of a carbon heat source in a favorable manner and thereby contributing to easy disposal of a butt of the rod-shaped tobacco product.

Solution to Problem

[0006] A cinder container for a cinder of a carbon heat source according to the present invention adopts the following configuration in order to achieve the above object. In other words, the present invention provides a cinder container for a cinder of a carbon heat source of a rod-shaped tobacco product, the carbon heat source having a circular column shape and being provided on a distal end side of a rod-shaped body portion that holds a tobacco material, the cinder container including: an insertion portion including an insertion opening that allows insertion of the cinder of the carbon heat source and an inner circumferential wall provided so as to be continuous with the insertion opening, the inner circumferential wall allowing the cinder of the carbon heat source to be broken off from the rod-shaped body portion; and a storage portion provided so as to be continuous with the insertion portion, the storage portion storing the cinder of the carbon heat source broken off by the inner circumferential wall, wherein the inner circumferential wall includes a cinder proximal end contact portion brought into contact with a proximal end side of the cinder of the carbon heat source when an operation of tilting the rod-shaped body portion is performed in a state in which the cinder of the carbon heat source is inserted from the insertion opening, and a cinder distal end contact portion provided on an opposite side of the cinder proximal end contact portion in a horizontal(transverse) cross-section of the insertion portion and brought into contact with a distal end side of the cinder of the carbon heat source.

[0007] According to the present invention, after smoking of a rod-shaped tobacco product, a cinder of the relevant carbon heat source is inserted from the insertion opening of the insertion portion and an operation of tilting the relevant rod-shaped body portion is performed, whereby the cinder proximal end contact portion of the inner circumferential wall of the insertion portion is brought into contact with the proximal end side of the carbon heat source and the cinder distal end contact portion of the inner circumferential wall is brought into contact with the distal end side of the carbon heat source. As a result, moment (torque) generated by the operation of tilting the rod-shaped body portion acts on a proximal end portion of the carbon heat source, the proximal end portion being in contact with the cinder proximal end contact portion of the inner circumferential wall, enabling the cinder of the carbon heat source to be broken off from the rod-shaped body portion in a favorable manner.

[0008] As above, the cinder container according to the present invention enables a cinder of a carbon heat source to be broken off from the relevant rod-shaped body portion in a favorable manner by the inner circumferential wall of the insertion portion, and the broken-off

cinder of the carbon heat source to fall down to and be thereby stored in the storage portion provided so as to be continuous with the insertion portion. As stated above, a cinder of a carbon heat source can be disposed of separately from the relevant rod-shaped body portion, and thus insufficiency in capacity of the storage portion is less likely to occur. Also, a rod-shaped body portion with a cinder of the relevant carbon heat source broken off therefrom can be disposed of as it is. In other words, the cinder container according to the present invention enables contributing to easy disposal of a butt of a rod-shaped tobacco product. Also, according to the present invention, after smoking of a rod-shaped tobacco product, a cinder of the relevant carbon heat source can be disposed of without performing an action of grinding out the cinder of the carbon heat source. For example, in the case of grinding out a cinder of a carbon heat source, an external force acts in a direction in which the cinder of the carbon heat source is pushed into the relevant rod-shaped body portion, and thus, it can be expected that the cinder of the carbon heat source is pushed into the rod-shaped body portion, resulting in difficulty in extinguishing the cinder of the carbon heat source. On the other hand, the present invention adopts a structure in which a cinder of a carbon heat source is broken off from the relevant rod-shaped body portion by the insertion portion of the cinder container, and thus, no inconveniences such as those caused where a structure in which a cinder of a carbon heat source is ground out is adopted are further likely to occur.

[0009] Also, in the present invention, each of the inner circumferential wall and the storage portion may have heat resistance. Such configuration enables suppression of damage of the insertion portion and/or the storage portion by heat held by a cinder of a carbon heat source.

[0010] Also, in the cinder container, each of respective distances in the horizontal cross-section direction of the insertion portion from a horizontal cross-section center of the insertion portion to the cinder proximal end contact portion and the cinder distal end contact portion of the inner circumferential wall may be substantially equal to a radius of the carbon heat source. Accordingly, in a state in which a cinder of a carbon heat source is inserted from the insertion opening of the insertion portion, no clearance or clearance having only a small dimension can be formed between the cinder proximal end contact portion of the inner circumferential wall of the insertion portion and a part on the proximal end side of the carbon heat source and no clearance or clearance having only a small dimension can be formed between the cinder distal end contact portion of the inner circumferential wall and a part on the distal end side of the carbon heat source. Consequently, moment (torque) can be made to act on the proximal end portion of the cinder of the carbon heat source immediately after a start of an operation of tilting the relevant rod-shaped body portion from this state, enabling the cinder of the carbon heat source to be easily and quickly broken off from the rod-shaped body portion. In other words, a cinder container that enables a user to easily break a cinder of a carbon heat source off from the relevant rod-shaped body portion and thus has excellent usability can be provided.

[0011] Also, in the present invention, an axial length of the inner circumferential wall may be equal to or exceed an axial length of the carbon heat source. Such configuration enables, when an operation of tilting a rod-shaped body portion in a state in which a cinder of a carbon heat source is inserted in the insertion portion, the cinder of the carbon heat source to be further easily broken off from the rod-shaped body portion.

[0012] Also, in the present invention, a diameter of the rod-shaped body portion may be larger than a diameter of the carbon heat source, and an inner diameter of the insertion opening may be larger than the diameter of the carbon heat source and is smaller than the diameter of the rod-shaped body portion. In a rod-shaped tobacco product having the above configuration, a diameter of the relevant rod-shaped body portion is increased compared to that of the relevant carbon heat source, and a step surface is formed at a boundary portion between the carbon heat source and the rod-shaped body portion. The step surface is typically a surface parallel to a distance end surface of the carbon heat source and is disposed along a direction orthogonal to an axial direction of the rod-shaped body portion and the carbon heat source.

[0013] Then, setting the inner diameter of the insertion opening of the cinder container for a cinder of a carbon heat source to have a dimension that is larger than the diameter of the carbon heat source and is smaller than the diameter of the rod-shaped body portion enables smooth insertion of a cinder of the carbon heat source to the insertion portion and suppression of insertion of the rod-shaped body portion to the insertion portion. For example, the step surface formed at the boundary portion between the carbon heat source and the rod-shaped body portion is brought into contact with an end surface of the insertion opening at the point of time of the cinder of the carbon heat source being entirely received in the receiving portion, whereby the rod-shaped tobacco product can easily be positioned relative to the cinder container. When a cinder of a carbon heat source is inserted to the insertion portion of the cinder container, this configuration suppresses insertion of even the relevant rod-shaped body portion to the insertion portion with excessive momentum. Therefore, a user can insert a cinder of a carbon heat source to the insertion portion without paying much attention to details. Then, the user can easily perceive (recognize) that the carbon heat source has been entirely inserted in the insertion portion from the feeling that the step surface formed at the boundary portion between the carbon heat source and the relevant rod-shaped body portion has come into contact with the end surface of the insertion opening. With the perception as a trigger, the user can stop the operation of inserting the carbon heat source, which is very convenient.

[0014] Also, in the present invention, the inner circumferential wall may have a cylindrical shape and an inner diameter of the insertion opening may be substantially equal to a diameter of the carbon heat source. Such configuration enables, regardless of a direction in which a rod-shaped body portion is tilted, moment (torque) to act on a proximal end portion of a cinder of the relevant carbon heat source and in addition, enables moment (torque) to act on the proximal end portion of the cinder of the carbon heat source immediately from the start of the operation of tilting the rod-shaped body portion. As a result, a user can easily and quickly break the cinder of the carbon heat source from the rod-shaped body portion.

[0015] Also, setting the inner diameter of the insertion opening of the cinder container to have a dimension that is substantially equal to a diameter of a carbon heat source enables, when a cinder of the carbon heat source is inserted to the insertion portion, an outer circumferential surface of the carbon heat source to be covered by the inner circumferential wall in a state in which the cylindrical inner circumferential wall is in close contact with the outer circumferential surface of the cinder of the carbon heat source or the cylindrical inner circumferential wall is close to the outer circumferential surface of the cinder of the carbon heat source. Consequently, even if fire remains in the cinder of the carbon heat source, supply of oxygen to the carbon heat source is blocked or reduced and thus the cinder of the carbon heat source can be extinguished.

[0016] Also, in the present invention, a lid member that opens/closes the insertion opening may be provided so as to be attachable/detachable to/from the insertion opening. Such configuration enables suppression of release of, e.g., cinders and/or ashes of carbon heat sources stored in the storage portion to the outside from the insertion opening of the insertion portion that communicates with the storage portion.

[0017] Also, the present invention can be specified as a butt container including a receiving portion that receives any of the above-stated cinder containers for a cinder of a carbon heat source and the rod-shaped body portion of the rod-shaped tobacco product with the cinder of the carbon heat source broken off therefrom.

[0018] Also, the present invention can be specified as a package for a rod-shaped tobacco product, the package including a receiving box that receives a rod-shaped tobacco product including a circular column-shaped carbon heat source provided on a distal end side of a rod-shaped body portion that holds a tobacco material, wherein the above-stated butt container is joined to the receiving box.

[0019] Also, the present invention can be specified as a package for a rod-shaped tobacco product, the package including a receiving portion that receives a rod-shaped tobacco product including a circular column-shaped carbon heat source provided on a distal end side of a rod-shaped body portion that holds a tobacco material, wherein any of the above-stated cinder containers for a cinder of a carbon heat source is received in the receiving portion.

[0020] The means for solving the problems according to the present invention can be adopted in any possible combination.

Advantageous Effects of Invention

[0021] The present invention enables provision of a technique relating to a cinder container for a cinder of a carbon heat source of a rod-shaped tobacco product, the cinder container enabling disposing of a cinder of a carbon heat source in a favorable manner and thereby contributing to easy disposal of a butt of the rod-shaped tobacco product.

Brief Description of the Drawings

[0022]

[Fig. 1] Fig. 1 is a diagram illustrating a rod-shaped tobacco product package that receives rod-shaped tobacco products according to Embodiment 1.

[Fig. 2] Fig. 2 is a diagram illustrating a rod-shaped tobacco product according to Embodiment 1.

[Fig. 3] Fig. 3 is a diagram illustrating operation of the rod-shaped tobacco product package according to Embodiment 1.

[Fig. 4] Fig. 4 is a diagram illustrating operation of the rod-shaped tobacco product package according to Embodiment 1.

[Fig. 5] Fig. 5 includes diagrams illustrating a detailed structure of a butt container according to Embodiment 1. Fig. 5(a) illustrates a state in which a tongue lid of the butt container is closed. Fig. 5(b) illustrates a state in which the tongue lid of the butt container is opened.

[Fig. 6] Fig. 6 is a perspective view of a cinder container according to Embodiment 1.

[Fig. 7] Fig. 7 is an exploded perspective view of the cinder container according to Embodiment 1.

[Fig. 8] Fig. 8 is a vertical cross-sectional view of the cinder container according to Embodiment 1.

[Fig. 9] Fig. 9 includes diagrams illustrating a method of use of the cinder container according to Embodiment 1.

[Fig. 10] Fig. 10 is a diagram illustrating a method of use of the cinder container according to Embodiment 1.

[Fig. 11] Fig. 11 is a diagram illustrating a method of use of the cinder container according to Embodiment 1.

[Fig. 12] Fig. 12 is a diagram illustrating a horizontal cross-section of an insertion portion of the cinder container according to Embodiment 1.

[Fig. 13] Fig. 13 is a diagram illustrating a method of use of the cinder container according to Embodiment

1.

[Fig. 14] Fig. 14 is a diagram illustrating an alteration of an outer tube in the cinder container according to Embodiment 1.

[Fig. 15] Fig. 15 is a diagram illustrating an alteration of the insertion portion of the cinder container according to Embodiment 1.

[Fig. 16] Fig. 16 includes diagrams illustrating an alteration of the cinder container according to Embodiment 1.

[Fig. 17] Fig. 17 includes diagrams illustrating a process of a tongue lid of the butt container according to Embodiment 1 being closed.

[Fig. 18] Fig. 18 is a diagram illustrating an alteration of a package that receives the cinder container according to Embodiment 1.

[Fig. 19] Fig. 19 includes diagrams each illustrating an alteration of an inner circumferential wall in the cinder container according to Embodiment 1.

[Fig. 20] Fig. 20 is a diagram illustrating an alteration of the cinder container according to Embodiment 1.

[Fig. 21] Fig. 21 is a perspective view of a cinder container according to Embodiment 2.

[Fig. 22] Fig. 22 is a perspective view of the cinder container according to Embodiment 2.

[Fig. 23] Fig. 23 is a cross-sectional view illustrating an inner structure of a butt container according to Embodiment 2.

[Fig. 24] Fig. 24 is a perspective view of a cinder container according to Embodiment 3.

[Fig. 25] Fig. 25 is a perspective view of the cinder container according to Embodiment 3.

Description of Embodiments

[0023] Here, embodiments of the present invention will be described with reference to the drawings. Note that dimensions, materials, shapes, relative dispositions, etc., of the components described in the present embodiments are not intended to limit the technical scope of the invention to the embodiments unless otherwise specifically noted.

<Embodiment 1>

[0024] Fig. 1 is a diagram illustrating a rod-shaped tobacco product package 100 that receives rod-shaped tobacco products 1 according to Embodiment 1. The rod-shaped tobacco product package 100 includes a receiving box 200 and a butt container 300 joined to the receiving box 200 via a hinge. The receiving box 200 is what is called a hinged lid box and includes a body portion 210 and a lid 220. The body portion 210 and the lid 220 are pivotably joined to each other via a hinge 230, and the lid 220 is openable/closable relative to the body portion 210. As illustrated in Fig. 1, new (unsmoked) rod-shaped tobacco products 1 are received in the receiving box 200.

[0025] Fig. 2 is a diagram illustrating a rod-shaped tobacco product 1 according to Embodiment 1. The rod-shaped tobacco product 1 includes a rod-shaped body portion 2 and a carbon heat source 3 provided on the distal end side of the rod-shaped body portion 2. The rod-shaped body portion 2 includes, e.g., an aerosol generating section 4, a filter 5 and a covering material 6. As illustrated in the figure, a diameter of the rod-shaped body portion 2 is set so as to have a dimension that is slightly larger than a diameter of the carbon heat source 3. In the example illustrated in Fig. 2, the diameter of the rod-shaped body portion 2 has a dimension that is larger than the diameter of the carbon heat source 3 by an amount that is around twice a thickness of the covering material 6. The aerosol generating section 4 is a section that, upon being heated, generates aerosol containing a smoke flavor ingredient. The aerosol generating section 4 may be a tube formed of a thermally-stable material such as aluminum or stainless steel, with, for example, sheeted or shredded tobacco charged therein or such sheeted or shredded tobacco may directly be charged inside the covering material 6.

[0026] The carbon heat source 3 is provided at a distal end of the aerosol generating section 4. Also, the filter 5 is provided so as to be continuous with a rear end of the aerosol generating section 4. Entire circumferences of the aerosol generating section 4 and the filter 5 and a partial circumference of the carbon heat source 3 are wrapped by the covering material 6 and thereby integrated. The covering material 6 may be, for example, a paper tube prepared using paper containing pulp as a main raw material. For this paper tube, e.g., roll paper or heavy paper used for a normal cigarette may be used. A basis weight of the heavy paper may be around 100 to 300 g/m^2. For the filter 5, a filter used for a normal cigarette may be applied. The carbon heat source 3 is, for example, a result of compression molding or extrusion molding of a mixture containing high-purity carbon particles, a non-combustible additive, an organic or inorganic binder and water, and in the present embodiment, is formed in a circular column shape. Also, at an end, on the opposite side of the aerosol generating section 4, of the filter 5, a mouthpiece end (mouth tip) is formed. It should be understood that any of various alterations can be made to the configuration of rod-shaped tobacco product 1. For example, the carbon heat source 3 may include through-holes and/or grooves for external air intake, the through-holes and/or grooves being formed so as to extend through the carbon heat source 3 in a longitudinal direction. The rod-shaped tobacco product 1 according to Embodiment 1 only needs to include the carbon heat source 3 on the distal end side, and is not limited to the configuration illustrated in Fig. 2. In other words, the configuration may be partially omitted and another component may be added to the configuration. Also, reference numeral 3a, which is indicated in Fig. 2, denotes a "proximal end portion" of the carbon heat source 3, and reference numeral 3b denotes a "distal end portion" of the carbon heat source 3. The proximal end portion 3a of the carbon

heat source 3 refers to a part of the carbon heat source 3 in a region not covered by the covering material 6, the part being closest to the aerosol generating section 4.

[0027] As illustrated in Fig. 3, in the rod-shaped tobacco product package 100, the body portion 210 of the receiving box 200 and the butt container 300 are pivotably joined to each other via a hinge 400. The hinge 400 extends along a height direction of the body portion 210 and the butt container 300. Fig. 3 illustrates the rod-shaped tobacco product package 100 in a state in which the receiving box 200 (body portion 210) is expanded from the butt container 300 with the hinge 400 as a center. The dot-dash-lines illustrated in Fig. 3 indicate the receiving box 200 during the expanding. Fig. 4 is a diagram illustrating a state in which the lid 220 of the receiving box 200 in the rod-shaped tobacco product package 100 is opened. Upon the lid 220 being opened, rod-shaped tobacco products 1 received in the body portion 210 of the receiving box 200 are exposed, enabling the rod-shaped tobacco products 1 to be freely taken out.

[0028] Next, the butt container 300 will be described. The butt container 300 is a package that stores butts of rod-shaped tobacco products 1. In the present embodiment, a cinder (hereinafter may be referred to as "burnt residue") of a carbon heat source 3 of a smoked rod-shaped tobacco product 1 is separated from a used rod-shaped body portion 2, and the used rod-shaped body portion 2 is directly put into the butt container 300, and the cinder of the carbon heat source 3 is put into a cinder container 10 received inside the butt container 300 (see, e.g., Figs. 1, 3 and 4). Here, a used rod-shaped body portion 2 refers to a rod-shaped body portion 2 of a smoked rod-shaped tobacco product 1.

[0029] Fig. 5 includes diagrams illustrating a detailed structure of the butt container 300 according to Embodiment 1. The butt container 300 is what is called a tongue lid package including a sheet-shaped lid portion, and includes a butt receiving portion 310 and a tongue lid 320 joined to the butt receiving portion 310. The tongue lid 320 is a lid member for opening/closing an upper end opening surface of the butt receiving portion 310. In the state illustrated in Fig. 5(a), the tongue lid 320 of the butt container 300 is closed, and in the state illustrated in Fig. 5(b), the tongue lid 320 is opened. In the butt receiving portion 310 of the butt container 300, a slit (cut) 311 for insertion of a tongue portion 321 formed on the distal end side of the tongue lid 320 is provided. Upon insertion of the tongue portion 321 of the tongue lid 320 to the slit 311 of the butt receiving portion 310, the tongue lid 320 is closed. Here, the butt container 300 is not limited to a tongue lid package, and may be, for example, a hinged lid package or a slide package. The butt container 300 only needs to be a package capable of receiving a cinder container 10 that receives a cinder of a carbon heat source 3 and also capable of receiving a used rod-shaped body portion 2 with a carbon heat source 3 broken off therefrom after smoking.

[0030] The cinder container 10 for a cinder of a carbon heat source is received in the butt receiving portion 310 of the butt container 300. Hereinafter, the cinder container 10 will be described in detail. Fig. 6 is a perspective view of the cinder container 10 according to Embodiment 1. Fig. 7 is an exploded perspective view of the cinder container 10 according to Embodiment 1. Fig. 8 is a vertical (longitudinal) cross-sectional view of the cinder container 10 according to Embodiment 1. In the present embodiment, the butt receiving portion 310 of the butt container 300 corresponds to a receiving portion in the present invention.

[0031] As illustrated in Figs. 6 to 8, the cinder container 10 is a container having a bottomed cylindrical structure, and includes an insertion opening 11 formed on the one end side as an open end and a bottom portion 12 formed on the other end side as an occluded end. Inside the cinder container 10, an insertion portion 20 is formed on the insertion opening 11 side, and a storage portion 30 is formed on the bottom portion 12 side. The insertion portion 20 is a part for putting in (inserting) a cinder of a carbon heat source 3 of a smoked rod-shaped tobacco product 1, and the storage portion 30 is a part that stores a cinder of a carbon heat source 3 broken off from a used rod-shaped body portion 2 in the insertion portion 20. The insertion portion 20 and the storage portion 30 in the cinder container 10 spatially communicate with each other. In the below, in an axial direction of the cinder container 10, an end on the side on which the bottom portion 12 is formed refers to "lower end" and an end on the side on which the insertion opening 11 is formed refers to "upper end".

[0032] In the example illustrated in Fig. 7, the cinder container 10 includes three cylindrical members 13 to 15 and an accordion-folded paper spring member indicated by reference numeral 16. In the below, the cylindrical member of reference numeral 13 is referred to as "tube body", the cylindrical member of reference numeral 14 is referred to as "inner tube" and the cylindrical member of reference numeral 15 is referred to as "outer tube". The tube body 13 is a bottomed cylindrical body, and each of the inner tube 14 and the outer tube 15 is a cylindrical body with opposite ends opened. An outer diameter of the inner tube 14 is equal to each of an inner diameter of the tube body 13 and an inner diameter of the outer tube 15. Then, as illustrated in Figs. 6 and 8, the inner tube 14 and the outer tube 15 are each attached to the open end side of the tube body 13.

[0033] More specifically, the inner tube 14 is fixed in such a manner that the inner tube 14 is inserted on the inner circumferential side of the tube body 13 so as to partially project from the open end of the tube body 13. Also, the outer tube 15 is externally fitted on the outer circumferential side of the inner tube 14, and a lower end surface of the outer tube 15 is brought into contact with an upper end surface of the tube body 13, whereby the inner tube 14 is positioned. In the present embodiment, as illustrated in Figs. 6 and 8, an outer diameter of the outer tube 15 is larger than an outer diameter of the tube

body 13. Also, as illustrated in Fig. 8, an upper end surface of the outer tube 15 is positioned so as to project upward relative to an upper end surface of the inner tube 14. Also, since the inner diameter of the outer tube 15 is equal to the outer diameter of the inner tube 14 as described above, the inner diameter of the outer tube 15 has a dimension that is larger than the inner diameter of the inner tube 14 by an amount corresponding to a thickness of the inner tube 14.

[0034] Examples of dimensions of the respective portions of the cinder container 10 can include a mode in which a length of the tube body 13 is 70 mm, a length of the inner tube 14 is 25 mm, a length of the outer tube 15 is 10 mm and a difference in level between an upper end of the inner tube 14 and an upper end of the outer tube 15 is 2 mm. However, these dimensions are mere examples.

[0035] A material used for each of the tube body 13, the inner tube 14 and the outer tube 15 is not specifically limited and preferably has heat resistance. In the present embodiment, for example, a sheet-shaped solid aluminum material (having a thickness of, for example, around 200 μm) is rolled up and thereby layered and an aluminum tape is applied to a surface of the solid aluminum material, whereby the solid aluminum material is formed in a tube shape. The cinder container 10 formed by the tube body 13, the inner tube 14 and the outer tube 15 formed as above has heat resistance.

[0036] In the cinder container 10, the open end positioned on the upper end side of the inner tube 14 forms the insertion opening 11, and an inner diameter (diameter) of the insertion opening 11 is set to have a dimension that is equal to or slightly larger than the diameter of the carbon heat source 3 of the rod-shaped tobacco product 1. For example, the diameter of the carbon heat source 3 of the rod-shaped tobacco product 1 is approximately 6.2 mm. On the other hand, the inner diameter of the insertion opening 11 of the cinder container 10 is set as 7.2 mm, which is 1 mm larger than the diameter of the carbon heat source 3. Consequently, after smoking a rod-shaped tobacco product 1, a smoker can put (insert) a cinder of the relevant carbon heat source 3 into the insertion portion 20 from the insertion opening 11. Here, the inner diameter of the insertion opening 11 is set to have a dimension that is smaller than the diameter of the rod-shaped body portion 2 (covering material 6) of each rod-shaped tobacco product 1.

[0037] Here, reference numeral 17, which is illustrated in Fig. 8, denotes a "cap member" for opening/closing the insertion opening 11 of the cinder container 10, which is provided so as to be attachable/detachable to/from the insertion opening 11. In the present embodiment, the cap member 17 corresponds to a lid member in the present invention.

[0038] As illustrated in Fig. 5(b), the cap member 17 is attached to an inner surface of the tongue lid 320 of the butt container 300. More specifically, the cap member 17 is attached to the vicinity of a left end of a surface of the tongue lid 320, the surface covering an open end of the butt receiving portion 310 when the tongue lid 320 is closed. The cap member 17 has a disk shape, and a diameter (outer diameter) of the cap member 17 is set to have a dimension that is larger than an outer diameter of the insertion opening 11 (inner diameter of the inner tube 14) and equal to the inner diameter of the outer tube 15. Therefore, upon tongue lid 320 being closed in a state in which the cinder container 10 is received at a predetermined position in the butt receiving portion 310 (left end position in the butt receiving portion 310 in the example in Fig. 5(b)), the cap member 17 is fitted on the inner circumferential side of the outer tube 15. As a result, the cap member 17 covers an upper portion of the insertion opening 11, and the insertion opening 11 is thus closed.

[0039] Also, since the diameter of the cap member 17 is larger than the diameter of the insertion opening 11 (inner diameter of the inner tube 14), there is no possibility of the cap member 17 being fitted and caught on the inner circumferential side of the inner tube 14. However, the present invention is not limited to this case, and the diameter of the cap member 17 may be smaller than the diameter of the insertion opening 11. In the present embodiment, the cap member 17 is fixed to the inner surface of the tongue lid 320 of the butt container 300, and thus, even if the diameter of the cap member 17 is smaller than the diameter of the insertion opening 11, the cap member 17 can be prevented from being fitted and caught in the inner tube 14. In the present embodiment, a mode in which a thickness of the cap member 17 is set as 3 mm can be provided as an example.

[0040] Also, reference numeral 18, which is illustrated in Figs. 6 to 8, denotes an inner circumferential wall (inner peripheral surface) of the inner tube 14, which forms a part of the insertion portion 20. In the cinder container 10 in the present embodiment, an axial length of the inner tube 14 (that is, an axial length of the inner circumferential wall 18) is set to be a length that is equal to or exceeds an axial length of a carbon heat source 3 to be inserted into the insertion portion 20 from the insertion opening 11. In the present embodiment, while the length of the carbon heat source 3 of each rod-shaped tobacco product 1 is approximately 10 mm, the length of the inner circumferential wall 18 is set as 25 mm, which is longer than the carbon heat source 3.

[0041] The cinder container 10 configured as described above has a structure having both a function that easily separates a cinder of a carbon heat source 3 of a rod-shaped tobacco product 1 from a used rod-shaped body portion 2 of the rod-shaped tobacco product 1 and a function that receives the cinder of the carbon heat source 3 separated from the used rod-shaped body portion 2. A method of use of the cinder container 10 will be described below.

[0042] Fig. 9 is a diagram illustrating a method of use of the cinder container 10 according to Embodiment 1. As illustrated in Fig. 4, a smoker opens the lid 220 of the

receiving box 200 of the rod-shaped tobacco product package 100 and thereby can take out a new rod-shaped tobacco product 1 from the receiving box 200 and smoke the new rod-shaped tobacco product 1. After smoking the rod-shaped tobacco product 1, as illustrated in Fig. 5(b), the smoker expands the butt container 300 from the receiving box 200 and opens the tongue lid 320 of the butt container 300. From this state, as illustrated in Fig. 9(a), the smoker brings the smoked rod-shaped tobacco product 1 close to the insertion opening 11 of the cinder container 10 from the carbon heat source 3 side and inserts (puts) a cinder of the relevant carbon heat source 3 into the insertion portion 20 from the insertion opening 11.

[0043] Here, since the inner diameter insertion opening 11 is adjusted to have a dimension that is slightly larger than the diameter of the carbon heat source 3, as illustrated in Fig. 10, the cinder of the carbon heat source 3 can easily be inserted into the insertion portion 20 from the insertion opening 11. Furthermore, since the inner diameter of the insertion opening 11 is smaller than a diameter (outer diameter) of a rod-shaped body portion 2 (covering material 6) of the rod-shaped tobacco product 1, the rod-shaped body portion 2 is prevented from being inserted into the insertion portion 20 from the insertion opening 11. Therefore, as illustrated in Fig. 10, the rod-shaped tobacco product 1 is positioned in a state in which a front end surface of the used rod-shaped body portion 2 (covering material 6) is in contact with the upper end surface of the inner tube 14 formed around the insertion opening 11.

[0044] With the cinder of the carbon heat source 3 inserted from the insertion opening 11, the smoker performs an operation of tilting the used rod-shaped body portion 2 as illustrated in Fig. 9(b). Then, as illustrated in Fig. 11, the cinder of the carbon heat source 3 inserted in the insertion portion 20 is about to also tilt inside the insertion portion 20 along with the above tilting operation, both a distal end portion 3b and a proximal end portion 3a in an axial direction of the cinder of the carbon heat source 3 collide with the inner circumferential wall 18 of the insertion portion 20 (inner tube 14). In the inner circumferential wall 18, a "cinder proximal end contact portion", which is indicated by reference numeral 18a in Fig. 11, corresponds to a part that is brought into contact with the proximal end side of the cinder of the carbon heat source 3 when an operation of tilting the used rod-shaped body portion 2 is performed. Also, in the inner circumferential wall 18, a "cinder distal end contact portion", which is indicated by reference numeral 18b in Fig. 11, corresponds to a part that is brought into contact with the distal end side of the cinder of the carbon heat source 3 when an operation of tilting the used rod-shaped body portion 2 is performed.

[0045] In the cinder container 10, the cinder proximal end contact portion 18a and the cinder distal end contact portion 18b of the inner circumferential wall 18 are provided on the mutually opposite sides in a horizontal(transverse) cross-section of the insertion portion 20. Fig. 12 is a diagram illustrating a horizontal cross-section of the insertion portion 20 of the cinder container 10. Symbol C denotes a center of the horizontal cross-section of the insertion portion 20 and corresponds to a center axis of the cinder container 10. The horizontal cross-section of the insertion portion 20 is a cross-section in a direction orthogonal to the center axis of the cinder container 10. As described above, the cinder proximal end contact portion 18a and the cinder distal end contact portion 18b of the inner circumferential wall 18 are located on the mutually opposite sides in the horizontal cross-section of the insertion portion 20. Here, the cinder proximal end contact portion 18a and the cinder distal end contact portion 18b of the inner circumferential wall 18 being located on the mutually opposite sides in the horizontal cross-section of the insertion portion 20 means an angle θ formed by a line segment L1 connecting the cinder proximal end contact portion 18a and the horizontal cross-section center C and a line segment L2 connecting the cinder distal end contact portion 18b and the horizontal cross-section center C in the horizontal cross-section of the insertion portion 20 being an angle that is larger than 90° and smaller than 270°.

[0046] For example, where the cinder distal end contact portion 18b is located at point A illustrated in Fig. 12 and the cinder distal end contact portion 18b is located at point B1, an angle $\theta 1$ formed by the line segment L1 and the line segment L2 can be recognized as approximately 180°. Also, where the cinder distal end contact portion 18b is located at point A illustrated in Fig. 12 and the cinder distal end contact portion 18b is located at point B2, an angle $\theta 2$ formed by the line segment L1 and the line segment L2' can be recognized as approximately 135°. Also, where the cinder distal end contact portion 18b is located at point A illustrated in Fig. 12 and the cinder distal end contact portion 18b is located at point B3, an angle $\theta 3$ formed by the line segment L1 and the line segment L2" can be recognized as approximately 225°. In each of the examples indicated above, the cinder proximal end contact portion 18a and the cinder distal end contact portion 18b of the inner circumferential wall 18 are located on the mutually opposite sides in the horizontal cross-section of the insertion portion 20.

[0047] As a result of the operation of tilting the used rod-shaped body portion 2 being performed, the cinder distal end contact portion 18b of the inner circumferential wall 18 is brought into contact with the distal end portion 3b of the carbon heat source 3 joined to the used rod-shaped body portion 2, and the cinder proximal end contact portion 18a located on the opposite side of the cinder distal end contact portion 18b in the horizontal cross-section of the insertion portion 20 is brought into contact with the proximal end portion 3a of the carbon heat source 3. As a result, moment (torque) generated by the operation of tilting the used rod-shaped body portion 2 acts on the proximal end portion 3a of the carbon heat source 3, enabling the cinder of the carbon heat source 3 to be

broken off from the used rod-shaped body portion 2.

[0048] As illustrated in Fig. 13, the cinder of the carbon heat source 3 broken off from the used rod-shaped body portion 2 in the receiving portion 20 of the cinder container 10 falls downward and is stored in the storage portion 30 that communicates with the receiving portion 20. In the example illustrated in Fig. 13, a state in which cinders of three carbon heat sources 3 are stored in the storage portion 30 of the cinder container 10 is indicated.

[0049] As above, the cinder container 10 according to the present embodiment enables a cinder of a carbon heat source 3 to be broken off from a used rod-shaped body portion 2 of a rod-shaped tobacco product 1 in a favorable manner by the inner circumferential wall 18 of the insertion portion 20, and the broken-off cinder of the carbon heat source 3 to fall down to and be thereby stored in the storage portion 30 provided so as to be continuous with the insertion portion 20. As described above, a cinder of a carbon heat source 3 can be disposed of separately from the relevant used rod-shaped body portion 2, and thus insufficiency in capacity of the storage portion 30 is less likely to occur.

[0050] The cinder container 10 according to the present embodiment is unlikely to be melt by heat of a cinder of a carbon heat source 3 because the inner circumferential wall 18 of the insertion portion 20 has heat resistance. Also, the storage portion 30 of the cinder container 10 is unlikely to be damaged by heat of a cinder of a carbon heat source 3 during the storage portion 30 storing the carbon heat source 3 because the storage portion 30 also has heat resistance.

[0051] In the cinder container 10 according to the present embodiment, a radius of an inner circumference of the inner circumferential wall 18 is set to have a dimension that is equal to a radius of a carbon heat source 3 or a dimension that is slightly larger than a radius of a carbon heat source 3 in consideration of clearance. As a result, a distance in the horizontal cross-section direction from the horizontal cross-section center of the insertion portion 20 to each of the cinder proximal end contact portion 18a and the cinder distal end contact portion 18b of the inner circumferential wall 18 is substantially equal to a radius of a carbon heat source 3. Adopting such structure enables, when an operation of tilting a used rod-shaped body portion 2 is performed with a cinder of the relevant carbon heat source 3 inserted from the insertion opening 11, no clearance or clearance having only a small dimension to be formed between the cinder proximal end contact portion 18a and a proximal end portion 3a of the carbon heat source 3 and no clearance or clearance having only a small dimension to be formed between the cinder distal end contact portion 18b and the distal end portion 3b of the carbon heat source 3. As a result, moment (torque) can be made to act on the proximal end portion 3a of the cinder of the carbon heat source 3 immediately after the start of the operation of tilting the used rod-shaped body portion 2, enabling the cinder of the carbon heat source 3 to be easily and quickly broken off from the used rod-shaped body portion 2.

[0052] Here, from the perspective of enhancement in easiness of insertion of a cinder of a carbon heat source 3 to the insertion portion 20 of the cinder container 10 and suppression of ash dispersion during the insertion, it is preferable that an inner diameter (diameter) of the inner circumferential wall 18 be larger than a diameter of a carbon heat source 3. However, if a difference between a diameter of a carbon heat source 3 and the inner diameter (diameter) of the inner circumferential wall 18 is excessively large, a cinder of the carbon heat source 3 is less likely to be broken off when an operation of tilting a used rod-shaped body portion 2 is performed. Therefore, if the inner diameter (diameter) of the inner circumferential wall 18 of the cinder container 10 is set to have a dimension that is larger than a diameter of a carbon heat source 3, a difference in dimension between the inner diameter of the inner circumferential wall 18 and the diameter of the carbon heat source 3 is preferably no more than 2 mm, more preferably no more than 1 mm. Consequently, a high level of easiness of insertion of a cinder of a carbon heat source 3 to the insertion portion 20 of the cinder container 10, a high level of suppression of ash dispersion during the insertion and a high level of easiness of breaking off the cinder of the carbon heat source 3 in an operation of tilting a rod-shaped body portion 2 can be achieved.

[0053] In particular, the cinder container 10 according to the present embodiment adopts a structure in which the inner circumferential wall 18 of the insertion portion 20 has a cylindrical shape and the inner diameter of the insertion opening 11 is substantially equal to a diameter of a carbon heat source 3, and thus, regardless of a direction in which the rod-shaped body portion 2 is tilted, moment (torque) can be made to act on a proximal end portion of a cinder of the carbon heat source 3 immediately after the start of the operation of tilting the rod-shaped body portion 2, the cinder of the carbon heat source 3 can extremely easily be broken off from the used rod-shaped body portion 2. Consequently, the cinder container 10 having excellent usability for a user can be provided.

[0054] Furthermore, as described above, adopting the structure in which the inner circumferential wall 18 of the insertion portion 20 has a cylindrical shape and the inner diameter of the insertion opening 11 is substantially equal to a diameter of a carbon heat source 3 enables, when a cinder of carbon heat source 3 is inserted to the insertion portion 20, the cylindrical inner circumferential wall 18 and an outer circumferential surface of the cinder of the carbon heat source 3 to be disposed so as to face each other in a state in which the cylindrical inner circumferential wall 18 is in close contact with the outer circumferential surface of the cinder of the carbon heat source 3 or the inner circumferential wall 18 is close to the outer circumferential surface of the cinder of the carbon heat source 3. Consequently, supply of oxygen to the carbon heat source 3 can be blocked or reduced and thus the

cinder of the carbon heat source 3 can be extinguished. For example, remaining fire in the carbon heat source 3 can be extinguished in a favorable manner by maintaining the state illustrated in Fig. 10 for several seconds (for example, around five seconds). It is preferable to, after extinguishing the carbon heat source 3 as described above, perform an operation of tilting the used rod-shaped body portion 2, which is illustrated in Fig. 11, to break off the cinder of the carbon heat source 3 from the used rod-shaped body portion 2.

[0055] Also, the cinder container 10 according to the present embodiment enables, when a cinder of a carbon heat source 3 is inserted to the insertion portion 20 of the cinder container 10, suppression of insertion of even the relevant rod-shaped body portion 2 to the insertion portion 20 with excessive momentum because the inner diameter of the insertion opening 11 is adjusted to have a dimension that is larger than a diameter of the carbon heat source 3 and is smaller than a diameter of the rod-shaped body portion 3. In other words, a user can insert a cinder of a carbon heat source 3 to the insertion portion 20 without paying much attention to details, and can perceive (recognize) that the carbon heat source 3 has been entirely inserted in the insertion portion 20 from the feeling that a front end surface of the rod-shaped body portion 2 has come into contact with the upper end surface of the inner tube 14. With the perception as a trigger, the user can stop the operation of inserting the carbon heat source 3, which is very convenient.

[0056] Furthermore, the cinder container 10 enables, when an operation of tilting a used rod-shaped body portion 2 in a state in which a cinder of the relevant carbon heat source 3 is inserted in the insertion portion 20, the cinder of the carbon heat source 3 to be further easily broken off from the rod-shaped body portion 2 because the length of the inner circumferential wall 18 is made to be equal to or exceeds an axial length of a carbon heat source 3. Also, the cinder container 10 enables, when a cinder of a carbon heat source 3 is inserted to the insertion portion 20 from the insertion opening 11, using the outer tube 15 in a favorable manner as a guide member for guiding the carbon heat source 3 to the insertion opening 11 because the inner diameter of the outer tube 15 is made to be larger than the inner diameter of the inner tube 14 (that is, the inner diameter of the insertion opening 11). Consequently, the user can easily insert the cinder of the carbon heat source 3 to the insertion opening 11.

[0057] However, the shape of the outer tube 15 used as a guide member for guiding a carbon heat source 3 to the insertion opening 11 is not limited to that of the configuration illustrated in, e.g., Fig. 6 and any of various shapes may be adopted. For example, no perpendicular surface perpendicular to the axial direction of the cinder container 10 may be formed at a boundary portion between the outer tube 15 and the inner tube 14, and for example, the alteration of the outer tube 15 illustrated in Fig. 14 may be adopted. In the example illustrated in Fig. 14, an outer tube 15 includes a tapered guide surface 15a, and when a cinder of a carbon heat source 3 is inserted to an insertion portion 20, a distal end portion 3b of the carbon heat source 3 slides on the guide surface 15a and is thereby easily guided to the insertion opening 11. Also, as a result of a front end surface of the relevant rod-shaped body portion 2 coming into contact with an intermediate portion or a lower end portion of the guide surface 15a, insertion of the rod-shaped body portion 2 to the insertion portion 20 with excessive momentum is suppressed, whereby the rod-shaped tobacco product 1 can be positioned.

[0058] Also, as in the alteration of the insertion portion 20 illustrated in Fig. 15, it is possible that an inner diameter of an inner circumferential wall 18 of an insertion portion 20 may be increased at an intermediate position in a length direction of the inner circumferential wall 18. In the alteration illustrated in Fig. 15, the inner diameter of the inner circumferential wall 18 is slightly increased at the position indicated by symbol D1. Here, the depth indicated by D1 is located at a depth at which when a carbon heat source 3 is inserted to the insertion portion 20, a distal end portion 3b of the carbon heat source 3 is located, and is hereinafter referred to as "inserted carbon heat source distal end depth". In the present alteration, in a first zone Z1, on the insertion opening 11 side relative to the inserted carbon heat source distal end depth D1, of the insertion portion 20, the inner diameter of the inner circumferential wall 18 is designed to be substantially equal to a diameter of a carbon heat source 3. On the other hand, in a second zone Z2, on the inner side relative to the inserted carbon heat source distal end depth D1, of the insertion portion 20, clearance between the inner circumferential wall 18 and an outer circumferential surface of a carbon heat source 3 is made to be larger than that in the first zone Z1. Consequently, in the first zone Z1 of the insertion portion 20, the inner diameter of the inner circumferential wall 18 is made to be substantially equal to a diameter of a carbon heat source 3, whereby a butt of the carbon heat source 3 can easily be broken off. Also, since in the second zone Z2 of the insertion portion 20, the inner diameter of the inner circumferential wall 18 is made to be larger than that in the first zone Z1, the butt of the carbon heat source 3 broken off in the first zone Z1 is prevented from being stuck in the second zone Z2 and thus the butt of the carbon heat source 3 can be made to smoothly fall down to the storage portion 30 below.

[0059] Furthermore, for the insertion portion 20 of the cinder container 10, various alterations can be adopted. For example, in the alteration of the cinder container 10 illustrated in Fig. 16, an insertion portion 20 includes a guide wall 21 provided in an upper portion of an insertion opening 11. Also, reference numeral 11a denotes a U-shaped edge portion, which forms a part of the insertion opening 11 and is provided at a position at which the U-shaped edge portion faces the guide wall 21. Also, reference numeral 21a denotes an upper edge portion of

the guide wall 21. The U-shaped edge portion 11a is provided at a position lower than the upper edge portion 21a of the guide wall 21. Also, as illustrated in Fig. 16, an inner circumferential wall 18 of the insertion portion 20 includes a cinder proximal end contact portion 18a and a cinder distal end contact portion 18b positioned on the mutually opposite sides in a horizontal cross-section of the insertion portion 20. In the example illustrated in Fig. 16, the cinder proximal end contact portion 18a is formed in the vicinity of the U-shaped edge portion 11a and is formed at a position at which the cinder proximal end contact portion 18a faces the guide wall 21 in the horizontal cross-section of the insertion portion 20. On the other hand, the cinder distal end contact portion 18b is provided at a position deeper than the cinder proximal end contact portion 18a and is formed at a position at which the cinder distal end contact portion 18b faces the cinder proximal end contact portion 18a.

[0060] In the cinder container 10 illustrated in Fig. 16, after smoking of a rod-shaped tobacco product 1, a butt of the relevant carbon heat source 3 is slid on the guide wall 21 toward the insertion opening 11, whereby the butt can be smoothly guided to the insertion opening 11. Then, with the butt of the carbon heat source 3 inserted in the insertion portion 20, the relevant used rod-shaped body portion 2 is tilted so as to be pulled out toward the front side from the guide wall 21. Consequently, in a state in which the cinder distal end contact portion 18b of the inner circumferential wall 18 is in contact with a distal end portion 3b of the carbon heat source 3 and the cinder proximal end contact portion 18a is in contact with a proximal end portion 3a of the carbon heat source 3, moment (torque) generated by the tilting operation acts on the proximal end portion 3a of the carbon heat source 3, whereby the cinder of the carbon heat source 3 can be broken off from the used rod-shaped body portion 2 in a favorable manner and be thereby disposed of.

[0061] In the present embodiment, a used rod-shaped body portion 2 with a cinder of the relevant carbon heat source 3 broken off therefrom can be disposed of as it is. For example, as illustrated in Fig. 9(c), the used rod-shaped body portion 2 can directly be put in the butt receiving portion 310 of the butt container 300. Such rod-shaped tobacco product package 100 including the cinder container 10 and the butt container 300 receiving the cinder container 10 enables disposing of a cinder of a carbon heat source 3 of a rod-shaped tobacco product 1 in a favorable manner and thereby contributing to easy disposal of a butt of the rod-shaped tobacco product 1.

[0062] Also, in the cinder container 10 according to the present embodiment, the cap member 17 is provided so as to be attachable/detachable to/from the insertion opening 11. Consequently, release of e.g., cinders and/or ashes of carbon heat sources 3 stored in the storage portion 20 of the cinder container 10 to the outside from the insertion opening 11 of the insertion portion 20 that communicates with the storage portion 30 can be suppressed. Also, the cinders of the carbon heat sources 3 stored in the storage portion 30 may be disposed of at a time by detaching the cap member 17 from the insertion opening 11. Also, a disposal cap member (not illustrated) may be detachably attached to the bottom portion 12 of the cinder container 10. Consequently, upon detachment of the disposal cap member, cinders of carbon heat sources 3 stored in the storage portion 30 can easily be disposed of without the cinder container 10 being turned upside down.

[0063] In particular, as described with reference to Figs. 5(a) and 5(b), in the present embodiment, the cinder container 10 is received in the butt receiving portion 310 of the butt container 300 and the cap member 17 is attached to the inner surface of the tongue lid 320. Thus, as a result of the cap member 17 is fitted in the inner circumferential side of the outer tube 15 of the cinder container 10 in conjunction with an operation of closing the tongue lid 320, the insertion opening 11 can be closed. Also, as a result of the fitting of the cap member 17 in the outer tube 15 being cancelled in conjunction with an operation of opening the tongue lid 320, the insertion opening 11 can be opened.

[0064] Here, Fig. 17 includes diagrams illustrating a process of the tongue lid 320 of the butt container 300 according to Embodiment 1 being closed. Since the accordion-folded paper spring member 16 is attached to the bottom portion 12 of the cinder container 10, the cinder container 10 received in the butt receiving portion 310 is consistently biased upward (toward the open end of the butt receiving portion 310) by a repulsive force of the paper spring member 16.

[0065] Upon the tongue portion 321 of the tongue lid 320 being put into the slit 311 of the butt receiving portion 310 from the state illustrated in Fig. 17(a) and the tongue lid 320 being closed as illustrated in Fig. 17(b), in conjunction with the closing, the insertion opening 11 is closed by the cap member 17. At this time, the cinder container 10 is pushed downward (toward a bottom surface of the butt receiving portion 310) by the tongue lid 320 and the cap member 17 fixed to the tongue lid 320. In other words, as a result of the cinder container 10 being pushed downward against the repulsive force of the paper spring member 16, the paper spring member 16 is further compressed compared to the state in Fig. 17(a). As a result, in a state in which the tongue lid 320 is closed, the insertion opening 11 of the cinder container 10 is pushed against the cap member 17 by the repulsive force of the paper spring member 16. Consequently, release of e.g., cinders and/or ashes of carbon heat sources 3 stored in the storage portion 20 of the cinder container 10 to the outside from the insertion opening 11 is further less likely to occur.

[0066] Also, although in the present embodiment, the cinder container 10 is received in the butt receiving portion 310 of the butt container 300 and the butt container 300 is joined to the receiving box 200 via a hinge, the present invention is not limited to this case. The cinder container 10 does not need to be received in, e.g., a

package and can be used alone. Where the cinder container 10 is used alone, there is no need to attach the paper spring member 16 to the bottom portion 12. Also, the cap member 17 of the cinder container 10 only needs to be provided so as to be attachable/detachable to/from the insertion opening 11 and may be, for example, a screw cap or another type of cap. Also, the cap member 17 may be a lid member of a type in which the lid member is externally fitted on an outer surface of the outer tube 15. Also, although in the present embodiment, the storage portion 30 of the cinder container 10 has the same diameter as the insertion portion 20, the present invention is not limited to this case. For example, the horizontal cross-section area of the storage portion 30 may be made larger than that of the insertion portion 20. Consequently, a storage capacity of the storage portion 30 can be increased, enabling cinders of more carbon heat sources 3 to be stored in the storage portion 30.

[0067] Also, the cinder container 10 may be received in the receiving box 200 instead of being received in the butt receiving portion 310 of the butt container 300. For example, Fig. 18 is a diagram illustrating an alteration of the package that receives the cinder container 10, and more specifically illustrates the receiving box 200 described in Embodiment 1. In such receiving box 200, a cinder container 10 may be received together with new rod-shaped tobacco products 1 inside a body portion 210. In this case, the body portion 210 that receives the cinder container 10 corresponds to a receiving portion in the present invention.

[0068] Also, although the cinder container 10 in the present embodiment adopts the structure in which the inner circumferential wall 18 of the insertion portion 20 has a cylindrical shape and the inner diameter of the insertion opening 11 is substantially equal to a diameter of a carbon heat source 3, the present invention is not limited to this case. It is only necessary that the cinder proximal end contact portion 18a and the cinder distal end contact portion 18b that are in contact with a proximal end portion 3a and a distal end portion 3b of a carbon heat source 3, respectively, when an operation of tilting the relevant used rod-shaped body portion 2 in a state in which the carbon heat source 3 is inserted in the insertion portion 20 of the cinder container 10 be provided in the inner circumferential wall 18 of the insertion portion 20.

[0069] Fig. 19 includes diagrams illustrating alterations of the inner circumferential wall 18 of the cinder container 10 according to Embodiment 1. In Fig. 19(a), a shape of an inner circumferential wall 18 is a square shape, in Fig. 19(b), a shape of an inner circumferential wall 18 is a substantially elliptical shape, and in Fig. 19(c), a shape of an inner circumferential wall 18 is a triangular shape. Also, in Fig. 19(d), a pair of projections 140 are provided in a cylindrical cinder container 10 and an inner circumferential wall 18 that allows a cinder of a carbon heat source 3 to be broken off from the relevant used rod-shaped body portion 2 is formed in a part of each projection. Here, the dashed line in each of Figs. 19(a) to 19(d) indicates an outer shape of a carbon heat source 3 inserted in an insertion portion 20. Also, symbol C denotes a horizontal cross-section center of the insertion portion 20. Also, symbol r1 denotes a distance from the horizontal cross-section center C of the insertion portion 20 to a cinder proximal end contact portion 18a of an inner circumferential wall 18, and r2 denotes a distance from the horizontal cross-section center C of the insertion portion 20 to a cinder distal end contact portion 18b of the inner circumferential wall 18. In each of the alterations illustrated in Figs. 19(a) to 19(d), in the horizontal cross-section direction of the insertion portion 20, the distance r1 from the horizontal cross-section center C of the insertion portion 20 to the cinder proximal end contact portion 18a and the distance r2 from the horizontal cross-section center C to the cinder distal end contact portion 18b are both substantially equal to a radius of the carbon heat source 3. Consequently, when an operation of tilting a rod-shaped body portion 2 is performed in a state in which a cinder of the relevant carbon heat source 3 is inserted from an insertion opening 11, moment (torque) can be made to act on a proximal end portion of the cinder of the carbon heat source 3, enabling the cinder of the carbon heat source 3 to be broken off from the rod-shaped body portion 2 in a favorable manner. Note that the alterations illustrated in Fig. 19 are example variations of the inner circumferential wall 18 and another shape may be adopted.

[0070] Also, although a rod-shaped tobacco product 1 in the above-described embodiment is set in such a manner that a diameter of the relevant rod-shaped body portion 2 is slightly larger than a diameter of the relevant carbon heat source 3, the diameter of the carbon heat source 3 and the diameter of the rod-shaped body portion 2 (outer diameter of the covering material 6) may be the same. In this case, also, after smoking a rod-shaped tobacco product 1, a smoker inserts a cinder of the carbon heat source 3 joined to the relevant used rod-shaped body portion 2 to the insertion portion 20 of the cinder container 10 and performs an operation of tilting the rod-shaped body portion 2, and thereby can easily break the cinder of the carbon heat source 3 off from the rod-shaped body portion 2.

[0071] Where a diameter of a carbon heat source 3 and a diameter of a rod-shaped body portion 2 (outer diameter of a covering material 6) of a rod-shaped tobacco product 1 are the same, as illustrated in Fig. 20, stoppers 19 to be brought into contact with a distal end portion 3b of the carbon heat source 3 may be provided inside a cinder container 10 so as to project from an inner circumferential wall 18 of an insertion portion 20. The pair of stoppers 19 may be disposed, for example, at respective positions at which the pair of stoppers 19 come into contact with a distal end portion 3b of a carbon heat source 3 at the point of time of insertion of a proximal end portion 3a of the carbon heat source 3 to the insertion portion 20. A smoker inserts a cinder of a carbon heat

source 3 of a smoked rod-shaped tobacco product 1 to the insertion portion 20 and performs an operation of tilting the rod-shaped body portion 2 at the point of time of a distal end portion 3b of the carbon heat source 3 coming into contact with the stoppers 19 and being thereby positioned, to break the carbon heat source 3 off from the rod-shaped body portion 2. Subsequently, for example, the cinder of the carbon heat source 3 is made to fall down from the stoppers 19 by, e.g., inclining the cinder container 10, whereby the cinder of the carbon heat source 3 can be stored in the storage portion 30.

<Embodiment 2>

[0072] Next, a butt container 300A according to Embodiment 2 will be described. Figs. 21 and 22 are perspective views of the butt container 300A according to Embodiment 2. Fig. 23 is a cross-sectional diagram illustrating an inner structure of the butt container 300A according to Embodiment 2. The butt container 300A includes a cinder container 10A and a container body 330 including a receiving space S that receives used rod-shaped body portions 2, inside. A slidable slide lid 340 is provided in a top portion of the container body 330, and opening of the slide lid 340 enables accessing the cinder container 10A and the receiving space S. Also, an outlet lid 350 is detachably attached to a bottom portion of the container body 330. In Fig. 21, the butt container 300A with the slide lid 340 closed is illustrated. Also, in Fig. 22, the butt container 300A with the slide lid 340 opened is illustrated.

[0073] A basic structure of the cinder container 10A is in common with that of the cinder container 10 according to Embodiment 1, which is illustrated in, e.g., Fig. 6. In other words, the cinder container 10A is a tubular container including a circular column-shaped hollow portion inside, and includes a circular insertion opening 11 formed on the upper end side as an open end. The cinder container 10A includes a hollow insertion portion 20 and a hollow storage portion 30 in this order from the insertion opening 11 side. The insertion opening 11, the insertion portion 20, the storage portion 30, etc., are as described in Embodiment 1. In other words, the insertion portion 20 includes an inner circumferential wall 18, and a cinder proximal end contact portion 18a and a cinder distal end contact portion 18b located on the mutually opposite sides in a horizontal cross-section of the insertion portion 20 are formed.

[0074] After smoking a rod-shaped tobacco product 1, a smoker opens the slide lid 340 of the butt container 300A and breaks a cinder of the relevant carbon heat source 3 off from the relevant used rod-shaped body portion 2 in a favorable manner via the cinder container 10A to put the cinder of the carbon heat source 3 into the storage portion 30 of the cinder container 10A. A method of use of the cinder container 10A is as described in terms of the cinder container 10 according to Embodiment 1. In other words, the smoked rod-shaped tobacco product 1 is brought close to the insertion opening 11 of the cinder container 10A from the carbon heat source 3 side and the cinder of the carbon heat source 3 is inserted (put) into the insertion portion 20 from the insertion opening 11. Here, since an inner diameter of the insertion opening 11 is adjusted to have a dimension that is slightly larger than a diameter of the carbon heat source 3, the cinder of the carbon heat source 3 can easily be put into the insertion portion 20 from the insertion opening 11. Also, since the inner diameter of the insertion opening 11 is smaller than a diameter (outer diameter) of the rod-shaped body portion 2 (covering material 6) of the rod-shaped tobacco product 1, insertion of the rod-shaped body portion 2 into the insertion portion 20 from the insertion opening 11 is suppressed. Therefore, the rod-shaped tobacco product 1 is positioned with a front end surface of the used rod-shaped body portion 2 (covering material 6) in contact with an edge surface of the insertion opening 11.

[0075] Then, with the cinder of the carbon heat source 3 inserted from the insertion opening 11, the smoker performs an operation of tilting the used rod-shaped body portion 2. As a result, moment (torque) generated by the tilting operation acts on a proximal end portion 3a (see Fig. 2) of the carbon heat source 3, enabling the cinder of the carbon heat source 3 to be easily broken off from the used rod-shaped body portion 2. Then, the cinder of the carbon heat source 3 separated from the used rod-shaped body portion 2 falls downward as it is and is stored in the storage portion 30. On the other hand, the used rod-shaped body portion 2 separated from the cinder of the carbon heat source 3 can be received in the receiving space S. Then, at an arbitrary timing, the user can detach the outlet lid 350 attached to the bottom portion of the container body 330 to dispose of cinders of carbon heat sources 3 stored in the storage portion 30 of the cinder container 10A and used rod-shaped body portions 2 received in the receiving space S at a time.

<Embodiment 3>

[0076] Next, a butt container 300B according to Embodiment 3 will be described. Figs. 24 and 25 are perspective views of the butt container 300B according to Embodiment 3. The butt container 300B includes a cinder container 10B and a container body 330 including a receiving space S that receives used rod-shaped body portions 2, inside. A slidable slide lid 340 is provided in a top portion of the container body 330, opening of the slide lid 340 enables accessing the cinder container 10A and the receiving space S. Also, an outlet lid 350 is slidably attached to a bottom portion of the container body 330. In Fig. 24, the butt container 300B with the slide lid 340 closed is illustrated. Also, in Fig. 25, the butt container 300B with the slide lid 340 opened is illustrated. The cinder container 10B has a structure that is the same as that of the cinder container 10A according to Embodiment 2.

[0077] As with the butt container 300A according to

Embodiment 2, with the butt container 300B according to Embodiment 3, also, it is possible that after smoking of a rod-shaped tobacco product 1, the slide lid 340 of the butt container 300B is opened and a cinder of the relevant carbon heat source 3 is broken off from the relevant used rod-shaped body portion 2 via the cinder container 10B to put the cinder of the carbon heat source 3 into a storage portion 30 of the cinder container 10B. Then, the used rod-shaped body portion 2 separated from the cinder of the carbon heat source 3 can be received in the receiving space S. Then, at an arbitrary timing, a user can dispose of cinders of carbon heat sources 3 stored in the storage portion 30 of the cinder container 10B and used rod-shaped body portions 2 received in the receiving space S at a time by opening the outlet lid 350 attached to the bottom portion of the container body 330. The receiving space S may be divided by partition walls so that used rod-shaped body portions 2 can be stored one by one. Consequently, a plurality of used rod-shaped body portions 2 can orderly be received in the receiving space S.

[0078] Although preferred embodiments of the present invention have been described above, it is obvious to a person skilled in the art that various changes, improvements, combinations and the like can be made to a cinder container for a cinder of a carbon heat source of a rod-shaped tobacco product, a butt container and a rod-shaped tobacco product package according to the present invention.

Reference Signs List

[0079]

1...rod-shaped tobacco product
2...rod-shaped body portion
3...carbon heat source
10...cinder container
11...insertion opening
12...bottom portion
13...tube body
14...inner tube
15...outer tube
16...paper spring member
17...cap member
18...inner circumferential wall
18a...cinder proximal end contact portion
18b...cinder distal end contact portion
20...insertion portion
30...storage portion
100...rod-shaped tobacco product package
200...receiving box
210...body portion
220...lid
300...butt container
310...butt receiving portion
320...tongue lid

Claims

1. A cinder container for a cinder of a carbon heat source of a rod-shaped tobacco product, the carbon heat source having a circular column shape and being provided on a distal end side of a rod-shaped body portion that holds a tobacco material, the cinder container comprising:

   an insertion portion including an insertion opening that allows insertion of the cinder of the carbon heat source and an inner circumferential wall provided so as to be continuous with the insertion opening, the inner circumferential wall allowing the cinder of the carbon heat source to be broken off from the rod-shaped body portion; and
   a storage portion provided so as to be continuous with the insertion portion, the storage portion storing the cinder of the carbon heat source broken off by the inner circumferential wall,
   wherein the inner circumferential wall includes a cinder proximal end contact portion brought into contact with a proximal end side of the cinder of the carbon heat source when an operation of tilting the rod-shaped body portion is performed in a state in which the cinder of the carbon heat source is inserted from the insertion opening, and a cinder distal end contact portion provided on an opposite side of the cinder proximal end contact portion in a horizontal cross-section of the insertion portion and brought into contact with a distal end side of the cinder of the carbon heat source.

2. The cinder container for a cinder of a carbon heat source of a rod-shaped tobacco product according to claim 1, wherein each of the inner circumferential wall and the storage portion has heat resistance.

3. The cinder container for a cinder of a carbon heat source of a rod-shaped tobacco product according to claim 1 or 2, wherein each of respective distances in the horizontal cross-section direction of the insertion portion from a horizontal cross-section center of the insertion portion to the cinder proximal end contact portion and the cinder distal end contact portion of the inner circumferential wall is substantially equal to a radius of the carbon heat source.

4. The cinder container for cinder of a carbon heat source of a rod-shaped tobacco product according to any one of claims 1 to 3, wherein an axial length of the inner circumferential wall is equal to or exceeds an axial length of the carbon heat source.

5. The cinder container for a cinder of a carbon heat source of a rod-shaped tobacco product according

to any one of claims 1 to 4, wherein:

a diameter of the rod-shaped body portion is larger than a diameter of the carbon heat source; and

an inner diameter of the insertion opening is larger than the diameter of the carbon heat source and is smaller than the diameter of the rod-shaped body portion.

6. The cinder container for a cinder of a carbon heat source of a rod-shaped tobacco product according to any one of claims 1 to 5, wherein the inner circumferential wall has a cylindrical shape and an inner diameter of the insertion opening is substantially equal to a diameter of the carbon heat source.

7. The cinder container for a cinder of a carbon heat source of a rod-shaped tobacco product according to any one of claims 1 to 6, wherein a lid member that opens/closes the insertion opening is provided so as to be attachable/detachable to/from the insertion opening.

8. A butt container comprising a receiving portion that receives a cinder container for a cinder of a carbon heat source of a rod-shaped tobacco product according to any one of claims 1 to 7 and the rod-shaped body portion of the rod-shaped tobacco product with the cinder of the carbon heat source broken off therefrom.

9. A package for a rod-shaped tobacco product, the package comprising a receiving box that receives a rod-shaped tobacco product including a circular column-shaped carbon heat source provided on a distal end side of a rod-shaped body portion that holds a tobacco material,
wherein a butt container according to claim 8 is joined to the receiving box.

10. A package for a rod-shaped tobacco product, the package comprising a receiving portion that receives a rod-shaped tobacco product including a circular column-shaped carbon heat source provided on a distal end side of a rod-shaped body portion that holds a tobacco material,
wherein a cinder container for a cinder of a carbon heat source of a rod-shaped tobacco product according to any one of claims 1 to 7 is received in the receiving box.

FIG. 1

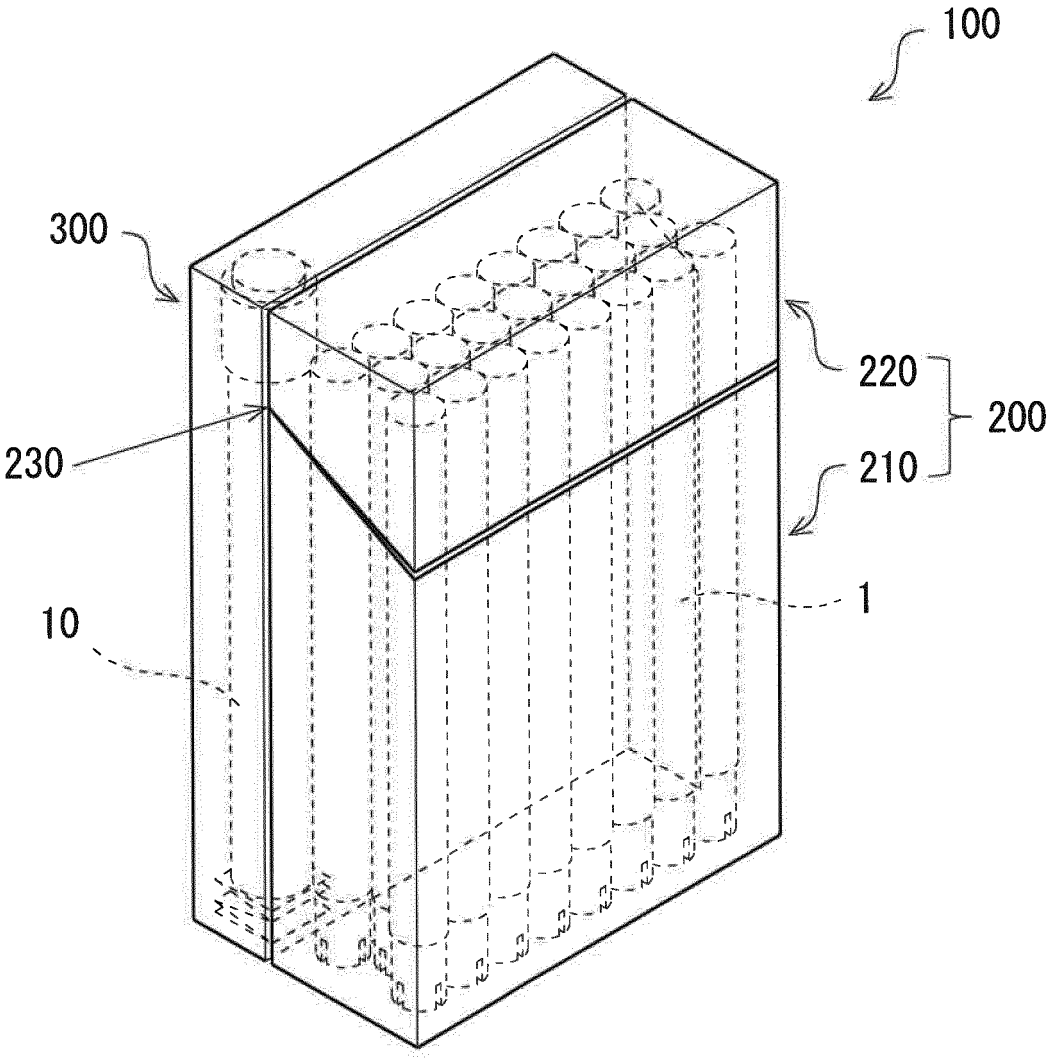


FIG. 2

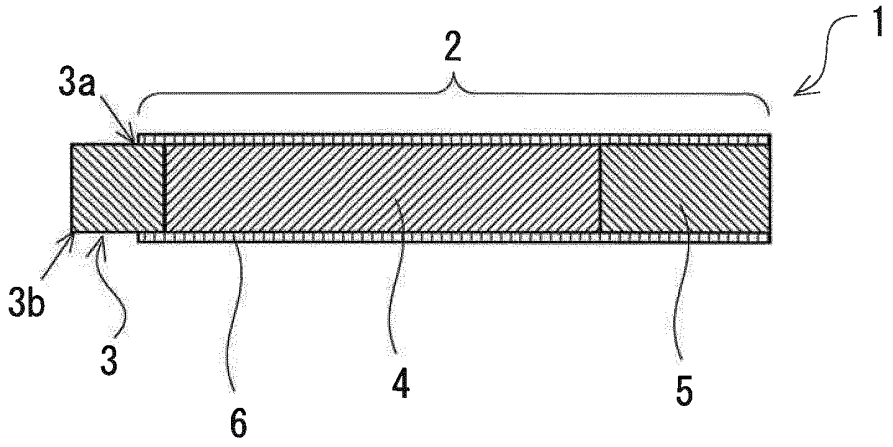


FIG. 3

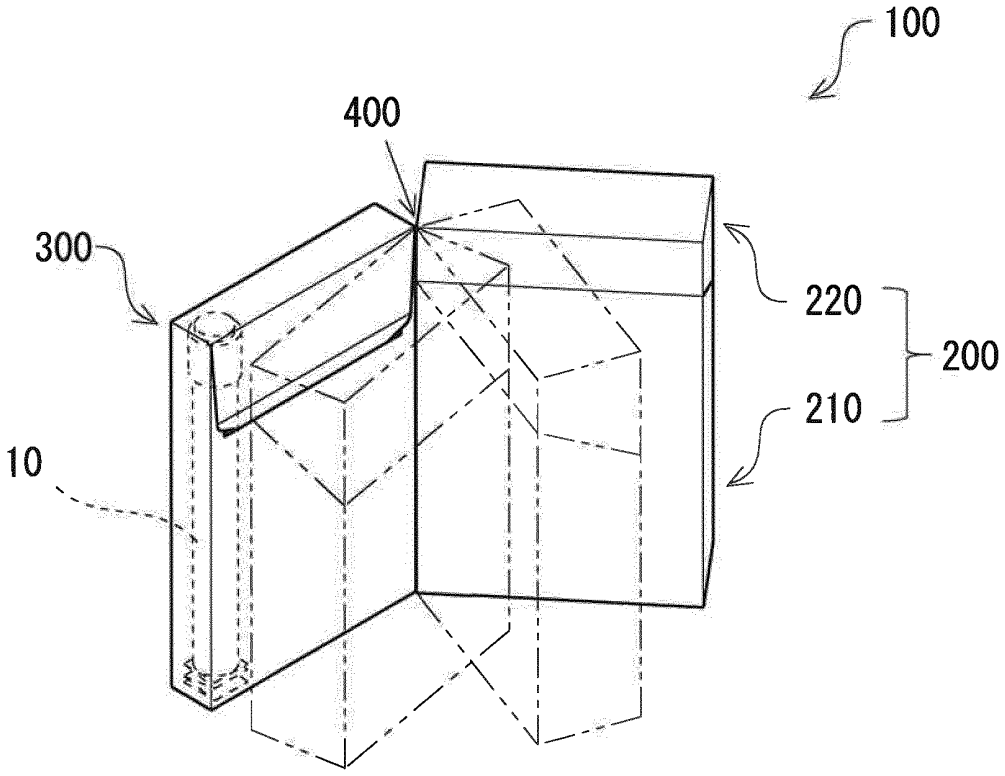


FIG. 4

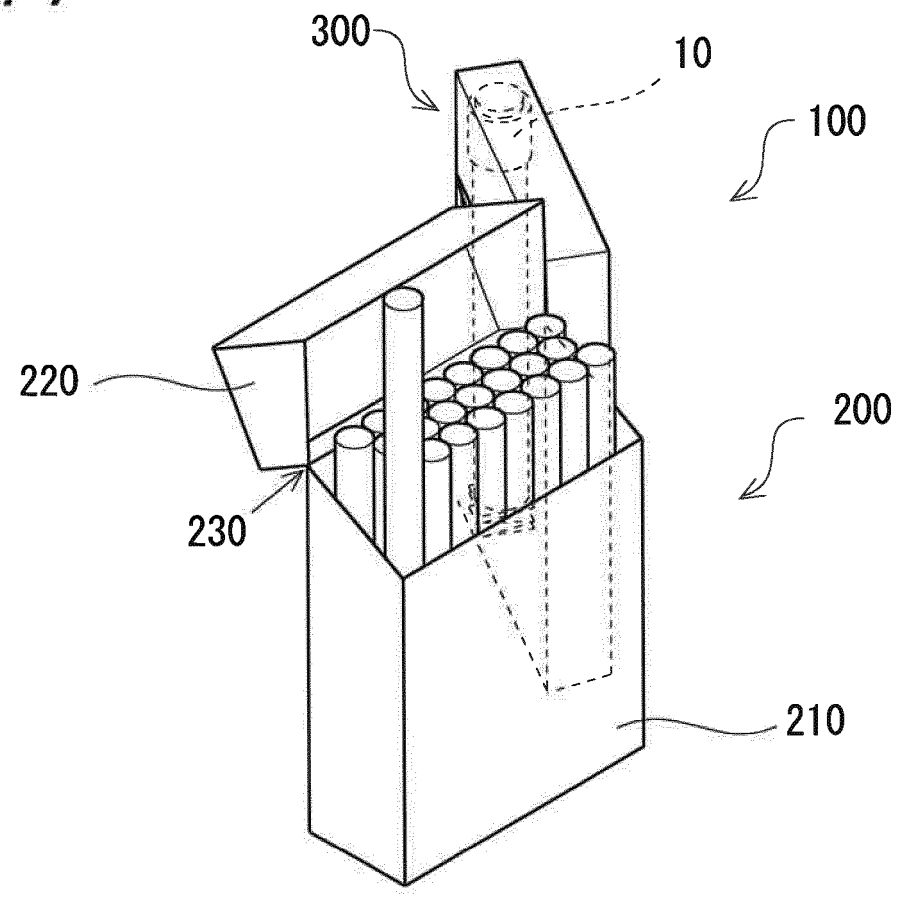
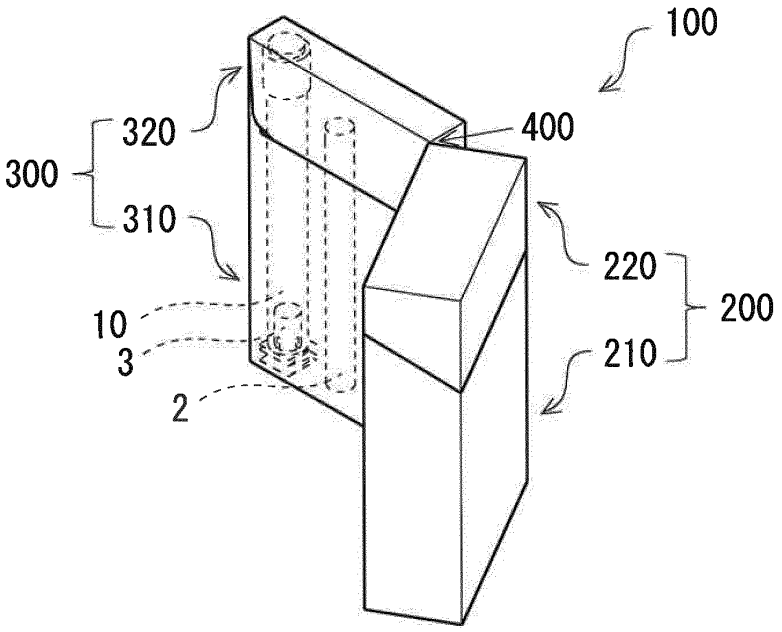


FIG. 5

(a)


100
320
300
310
400
220
200
210
10
3
2

(b)

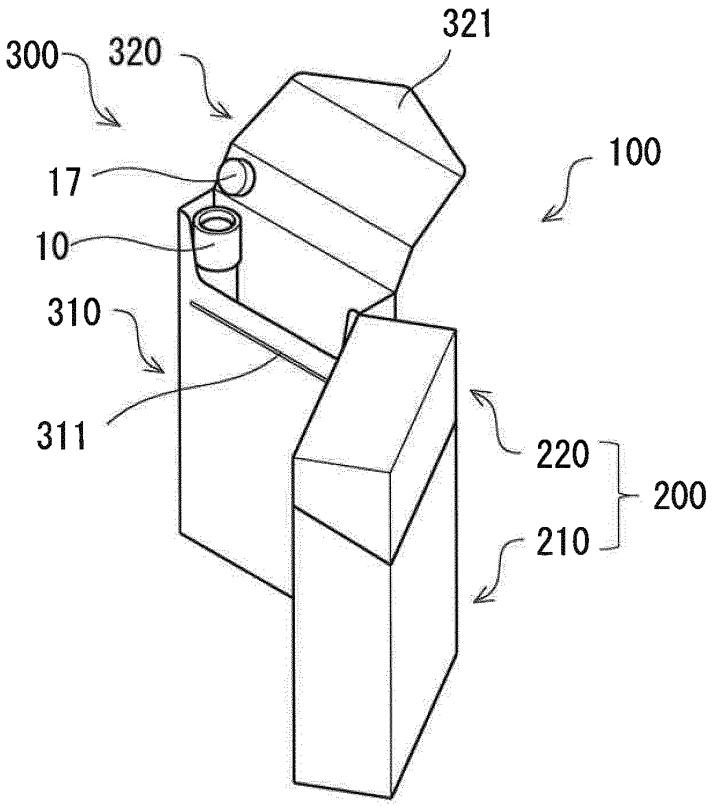

321
300
320
100
17
10
310
311
220
200
210

FIG. 6

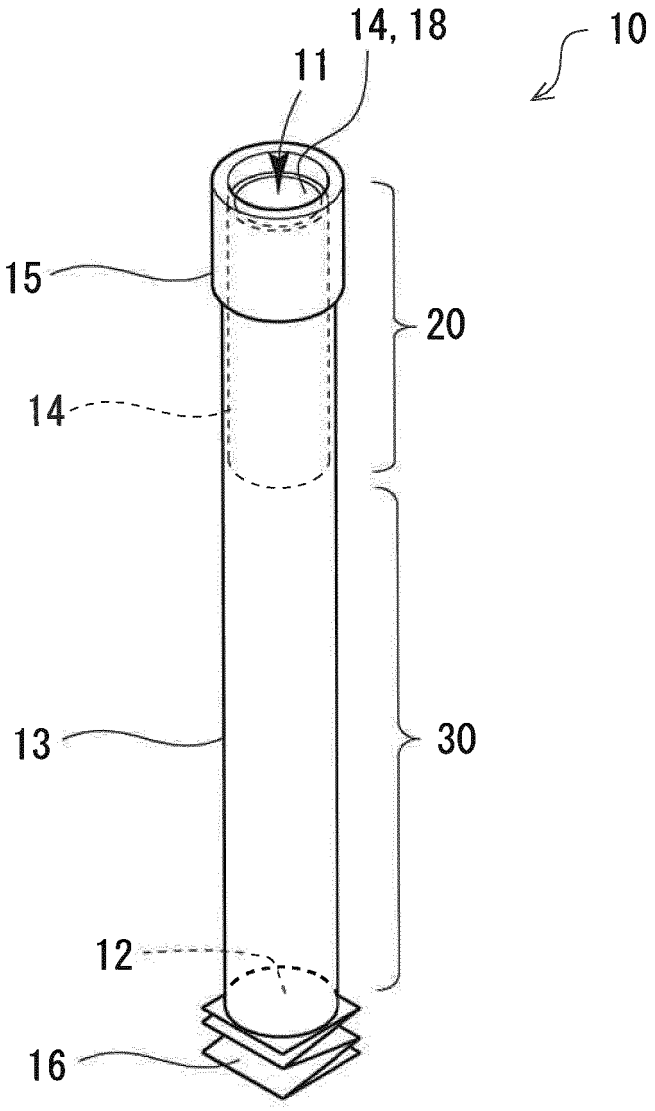


FIG. 7

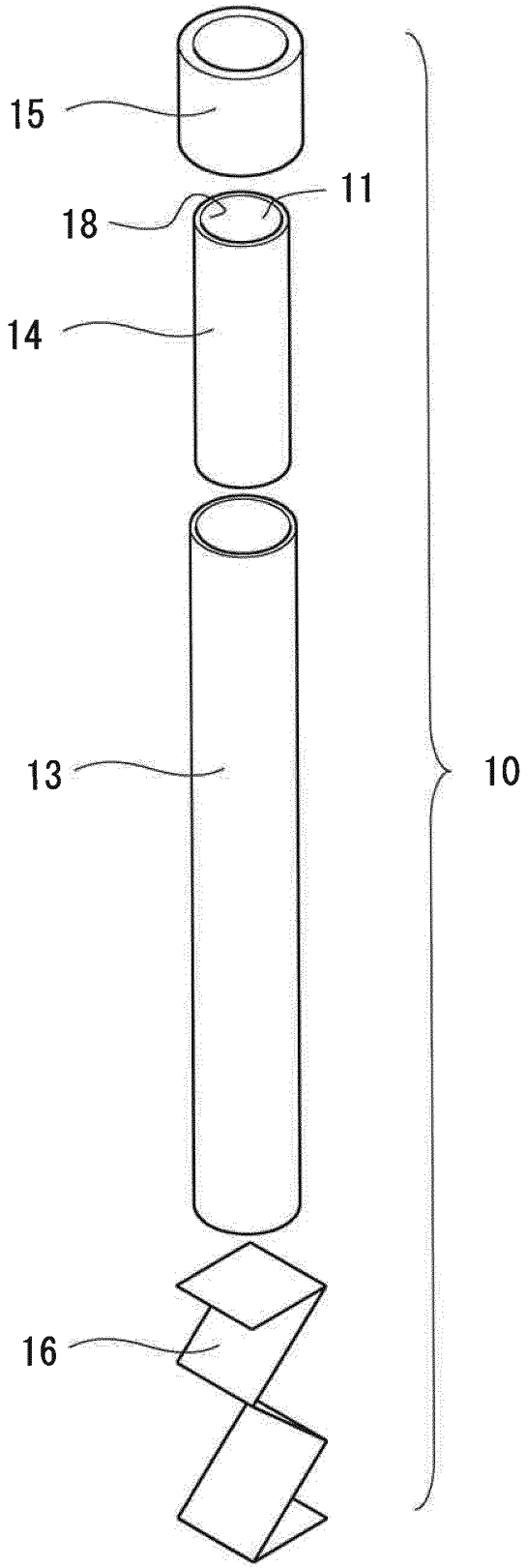


FIG. 8

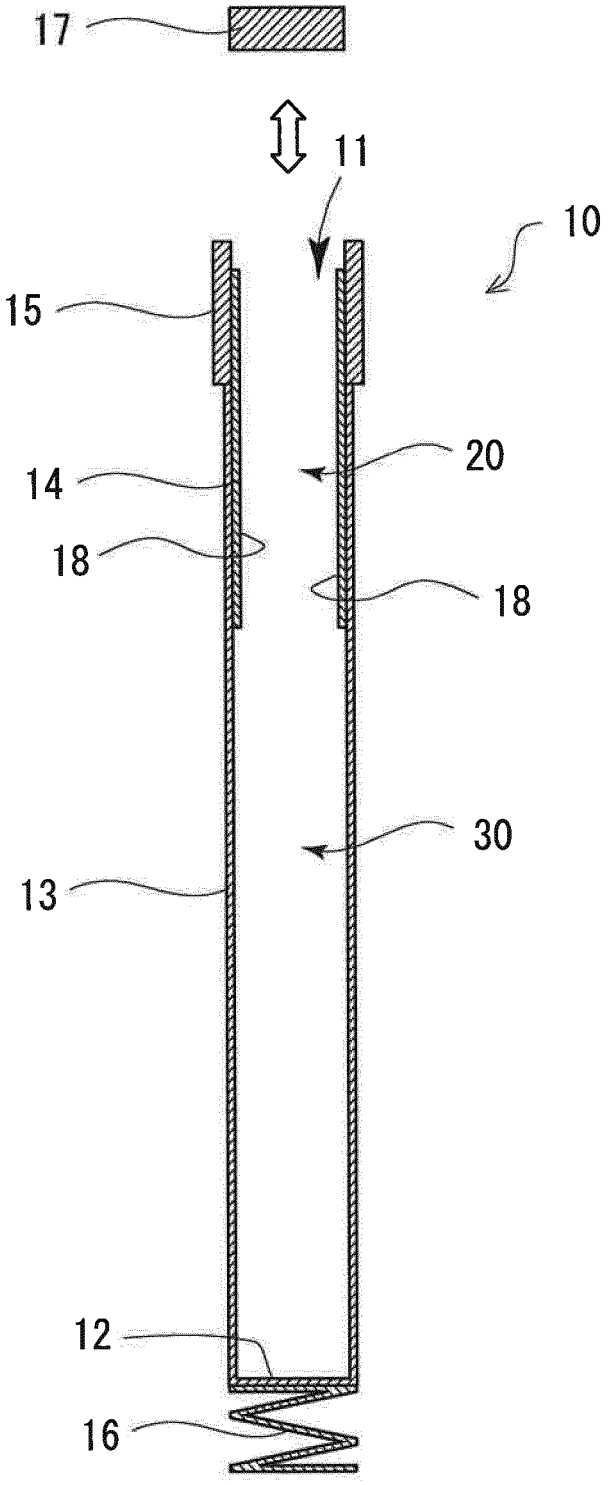


FIG. 9

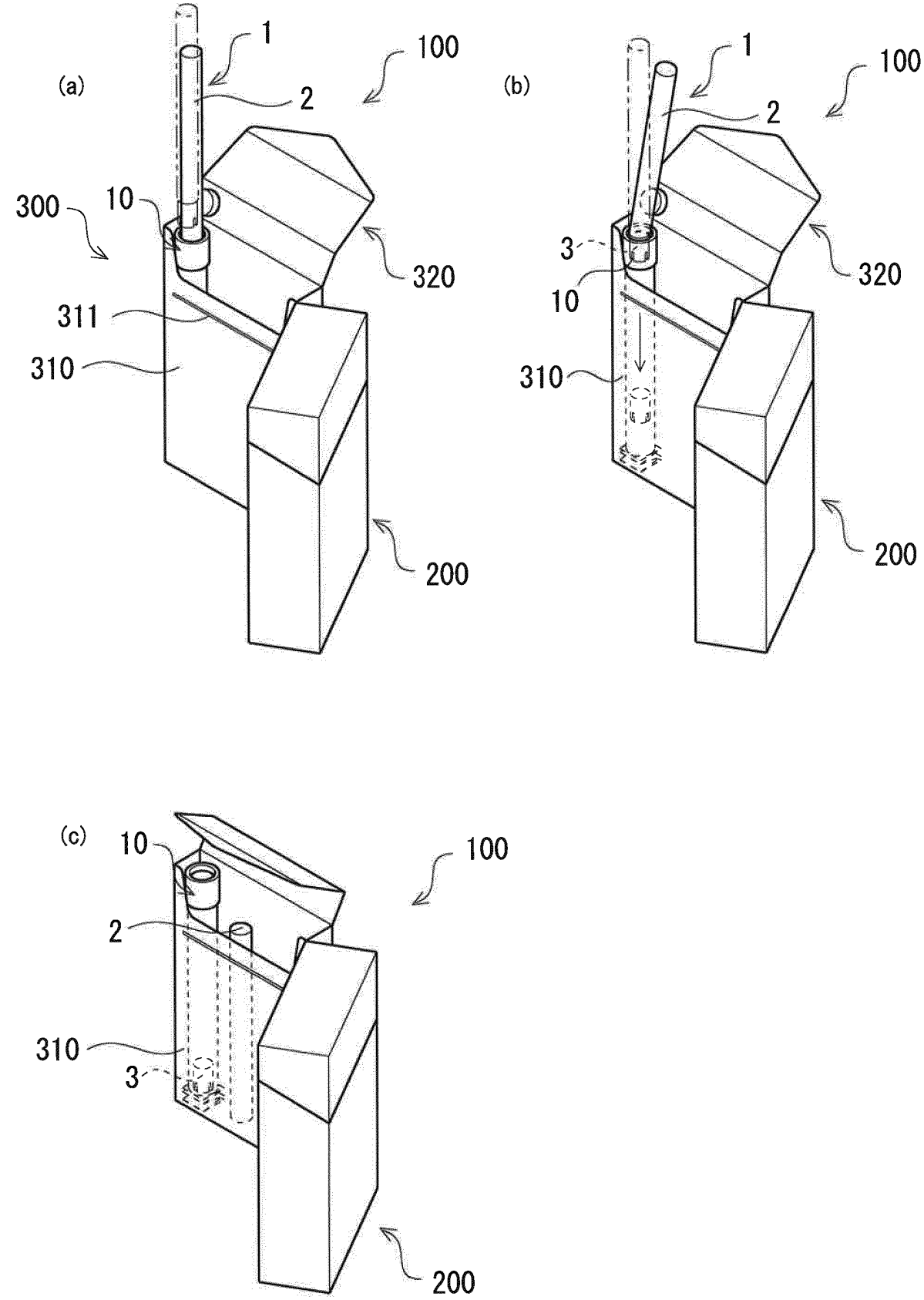

(a)
1
100
2
300
10
320
311
310
200
(b)
1
100
2
3
10
320
310
200
(c)
10
100
2
310
3
200

FIG. 10

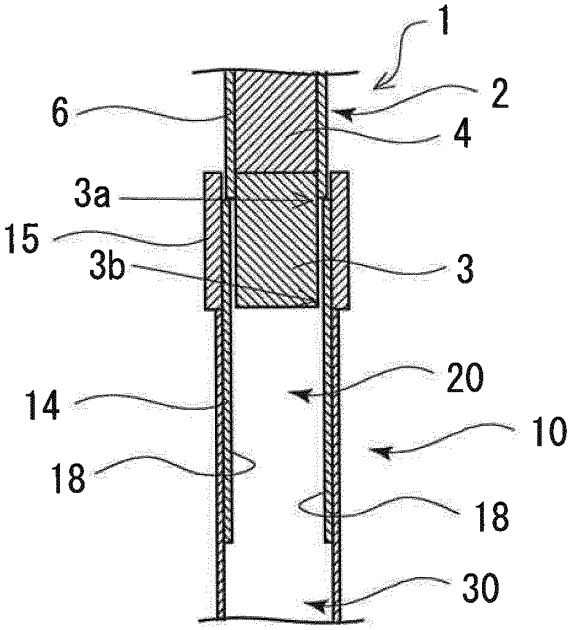

1
2
6
4
3a
15
3b
3
20
14
10
18
18
30

FIG. 11

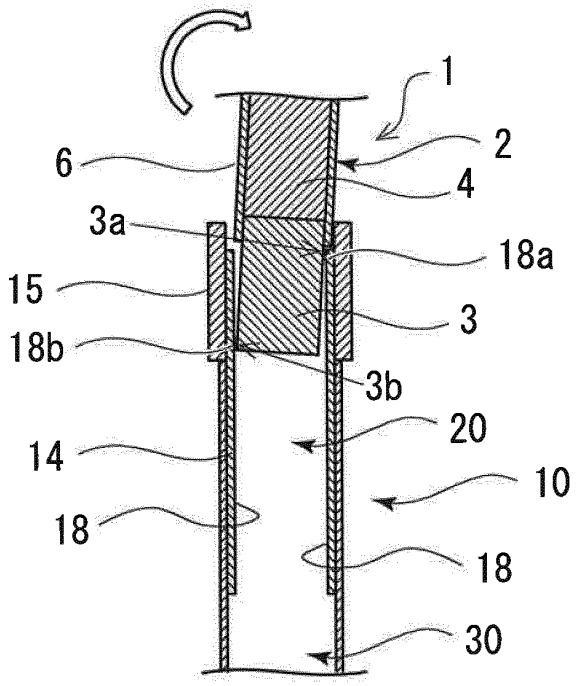

1
2
6
4
3a
18a
15
3
18b
3b
20
14
10
18
18
30

FIG. 12

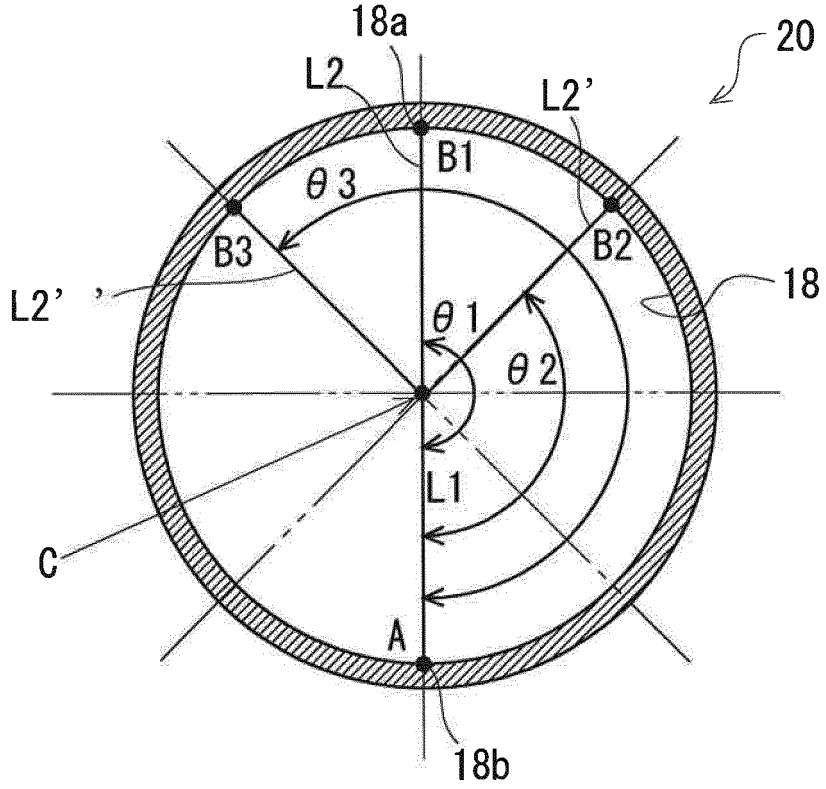


FIG. 13

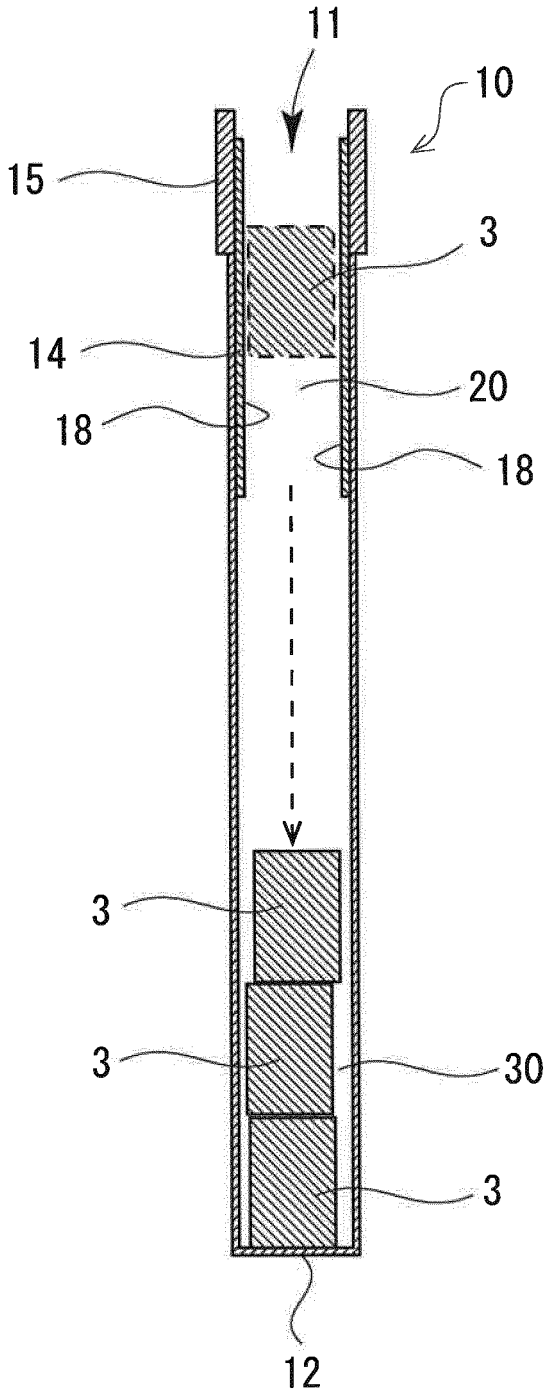


FIG. 14

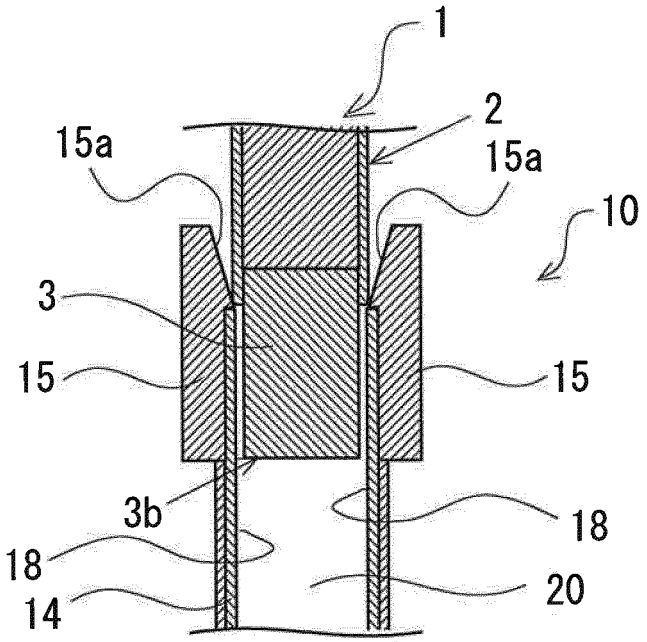

1
2
15a
15a
10
3
15
15
3b
18
18
14
20

FIG. 15

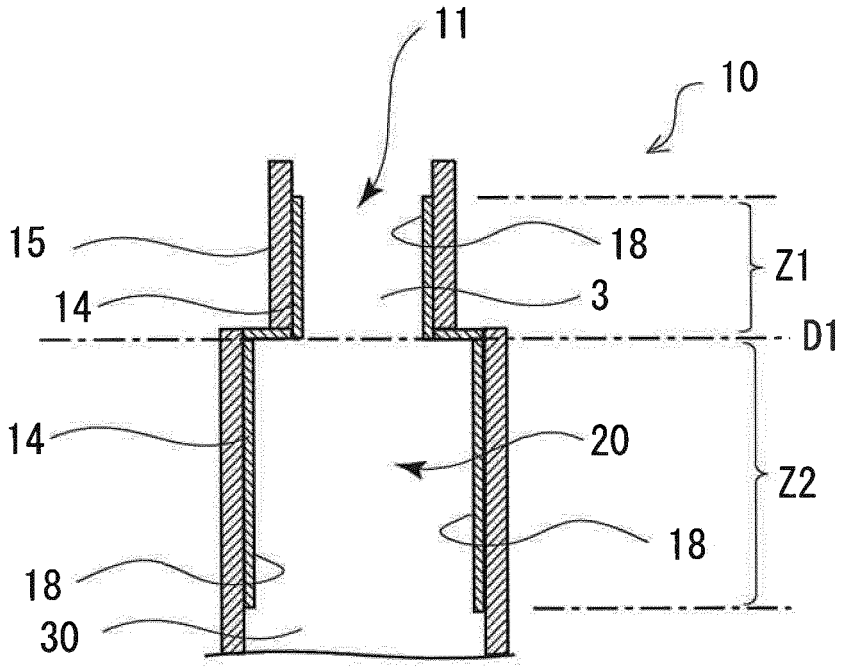

11
10
15
14
18
3
Z1
D1
14
20
18
Z2
18
30

FIG. 16

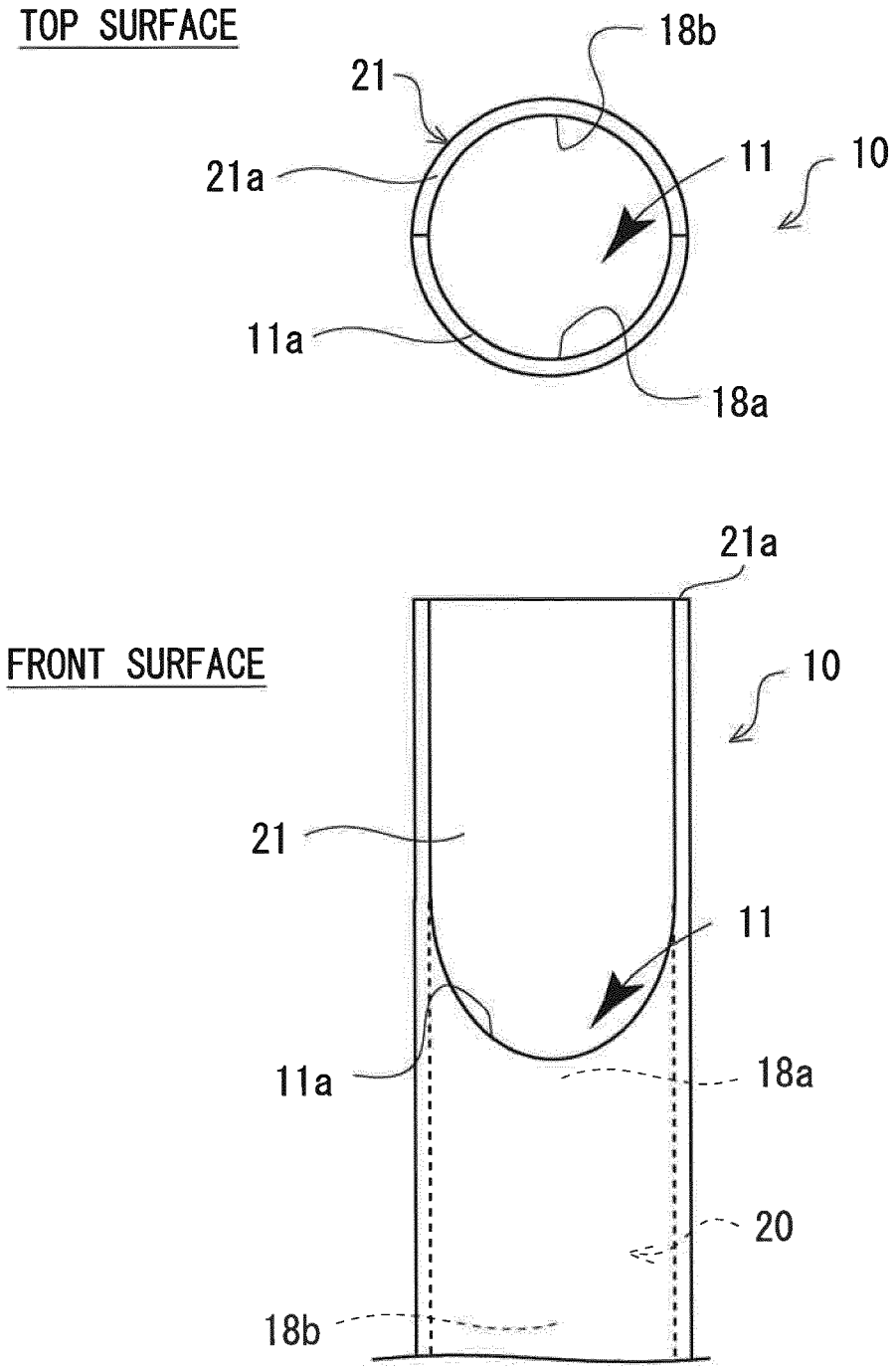

TOP SURFACE
18b
21
21a
11
10
11a
18a
21a
FRONT SURFACE
10
21
11
11a
18a
20
18b

FIG. 17

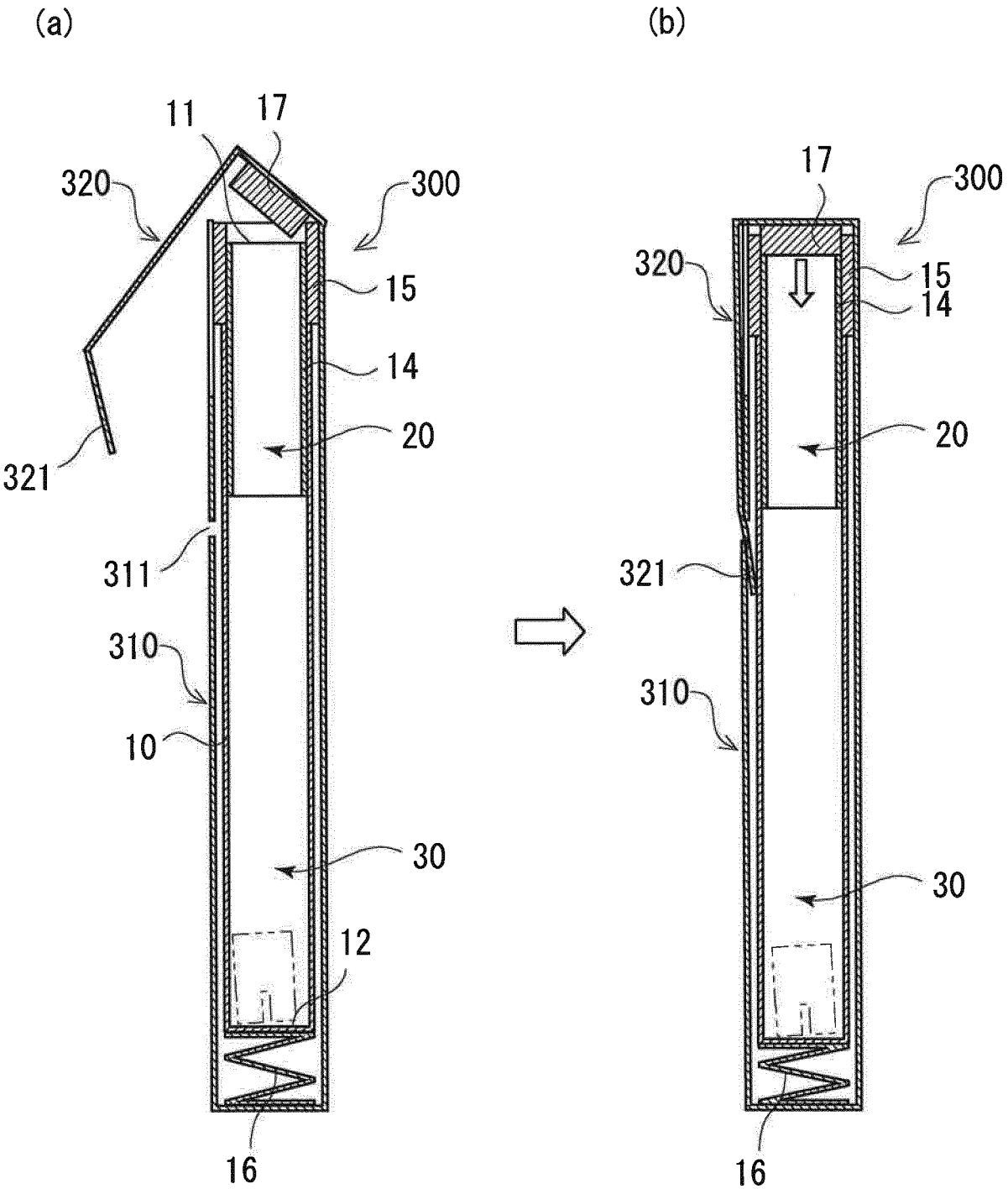

(a)
(b)
11
17
320
300
15
14
20
321
311
310
10
30
12
16
17
300
320
15
14
20
321
310
30
16

FIG. 18

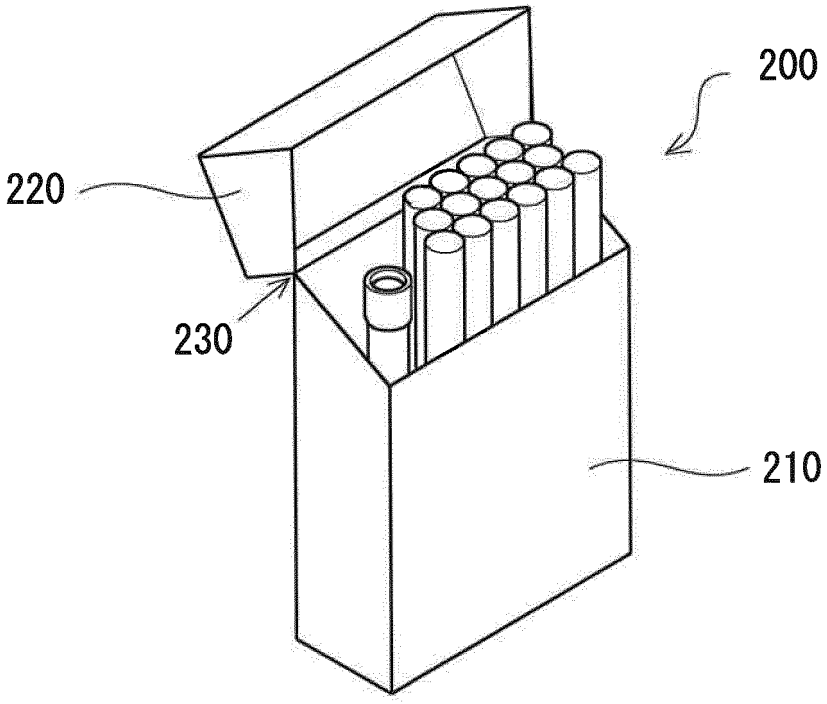


FIG. 19

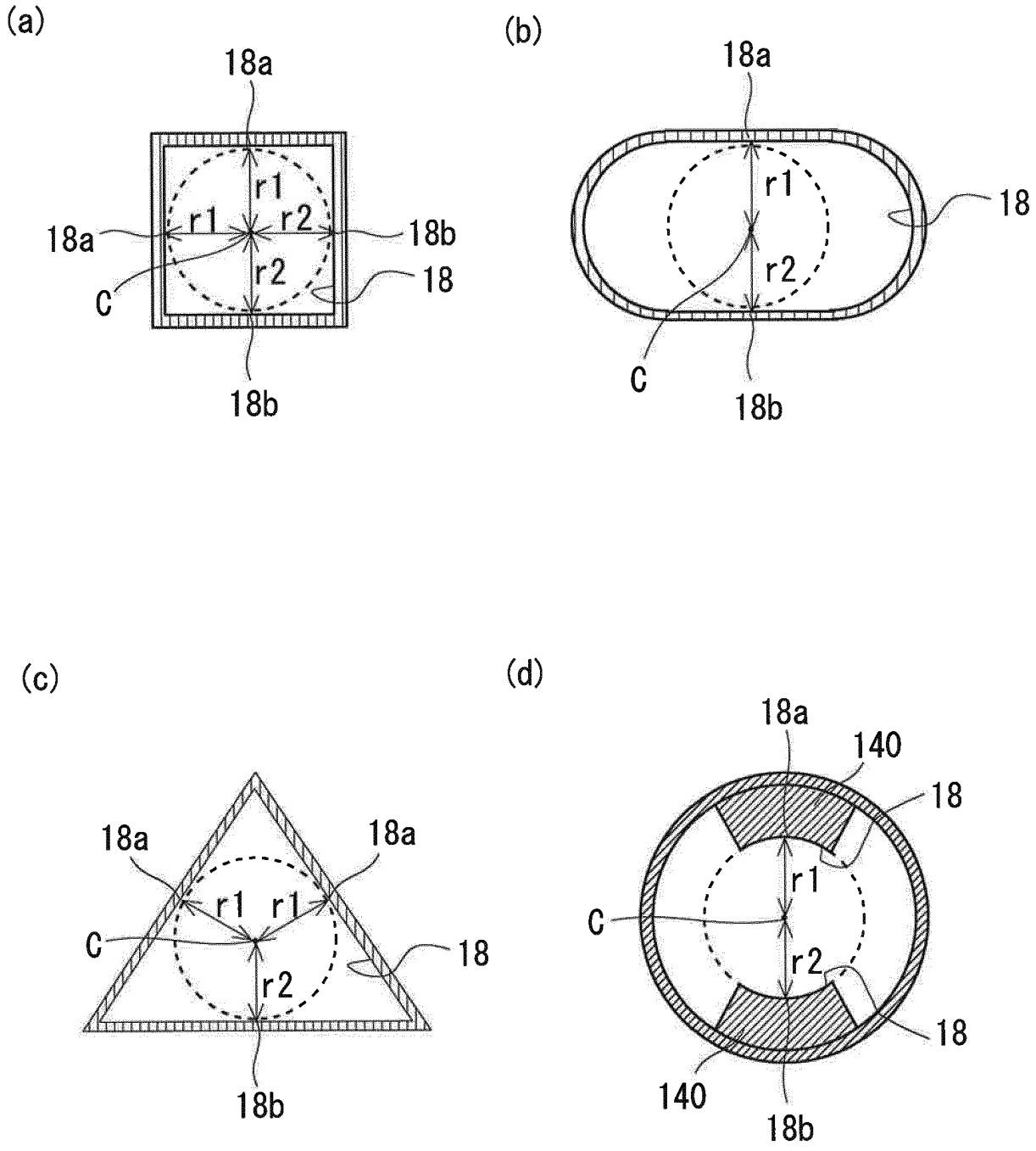

(a)
18a
r1
r1
r2
18a
18b
C
r2
18
18b
(b)
18a
r1
18
r2
C
18b
(c)
18a
18a
r1
r1
C
18
r2
18b
(d)
18a
140
18
r1
C
r2
18
140
18b

FIG. 20

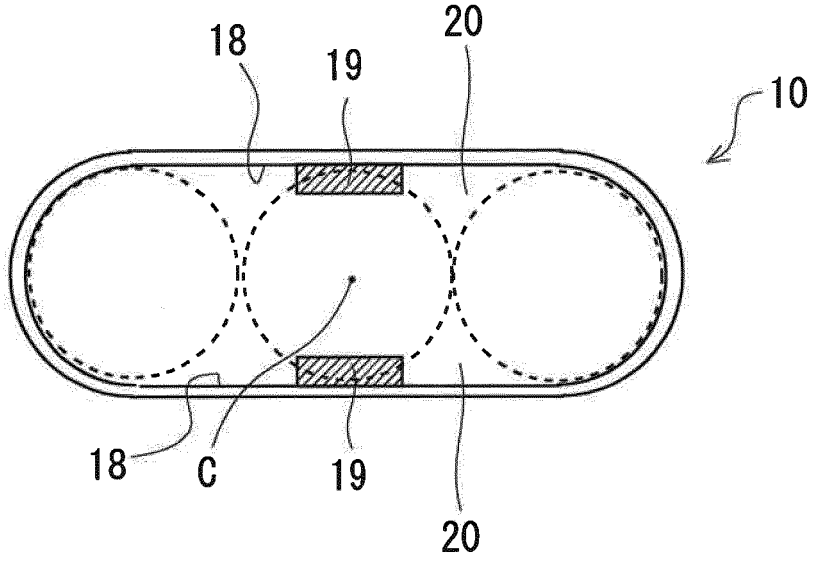


FIG. 21

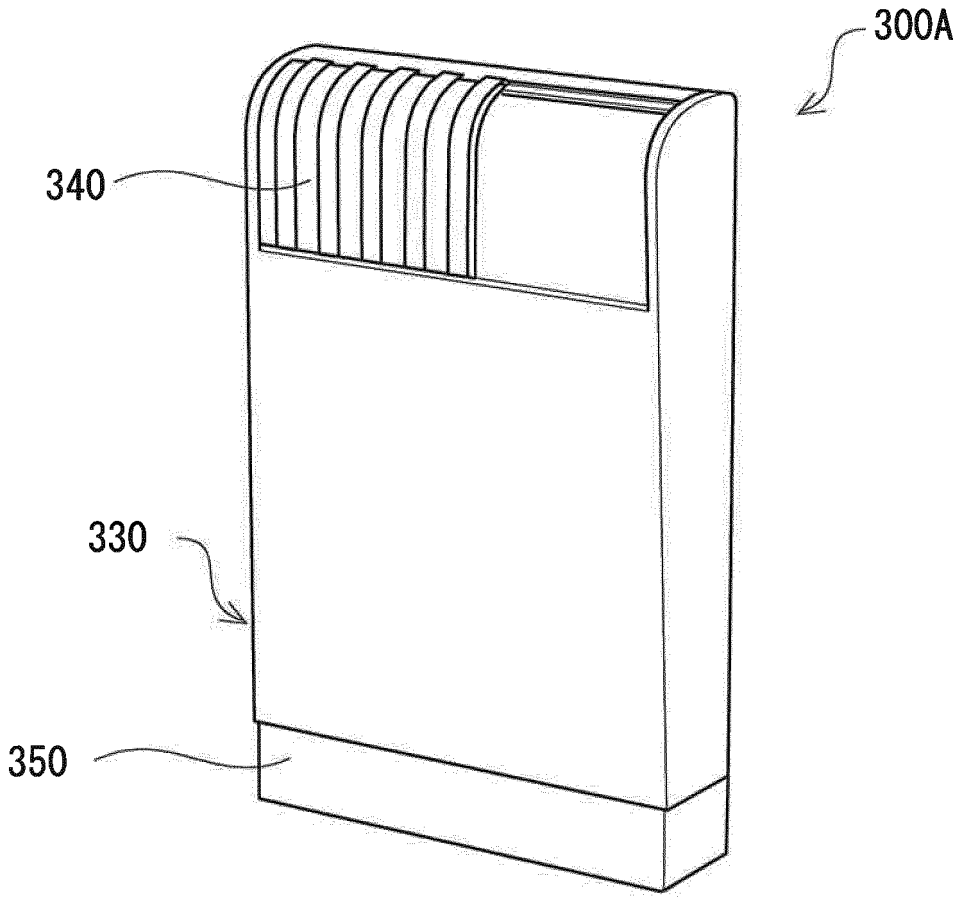


FIG. 22

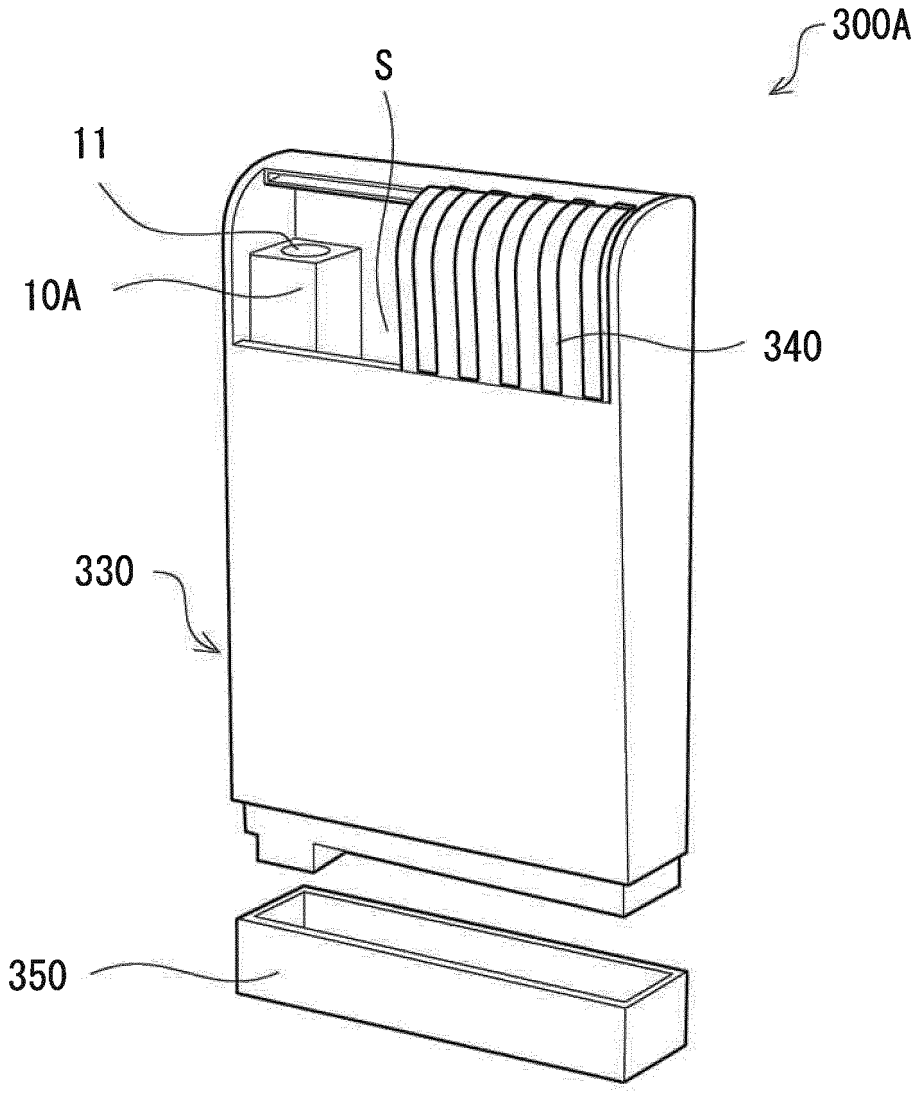


FIG. 23

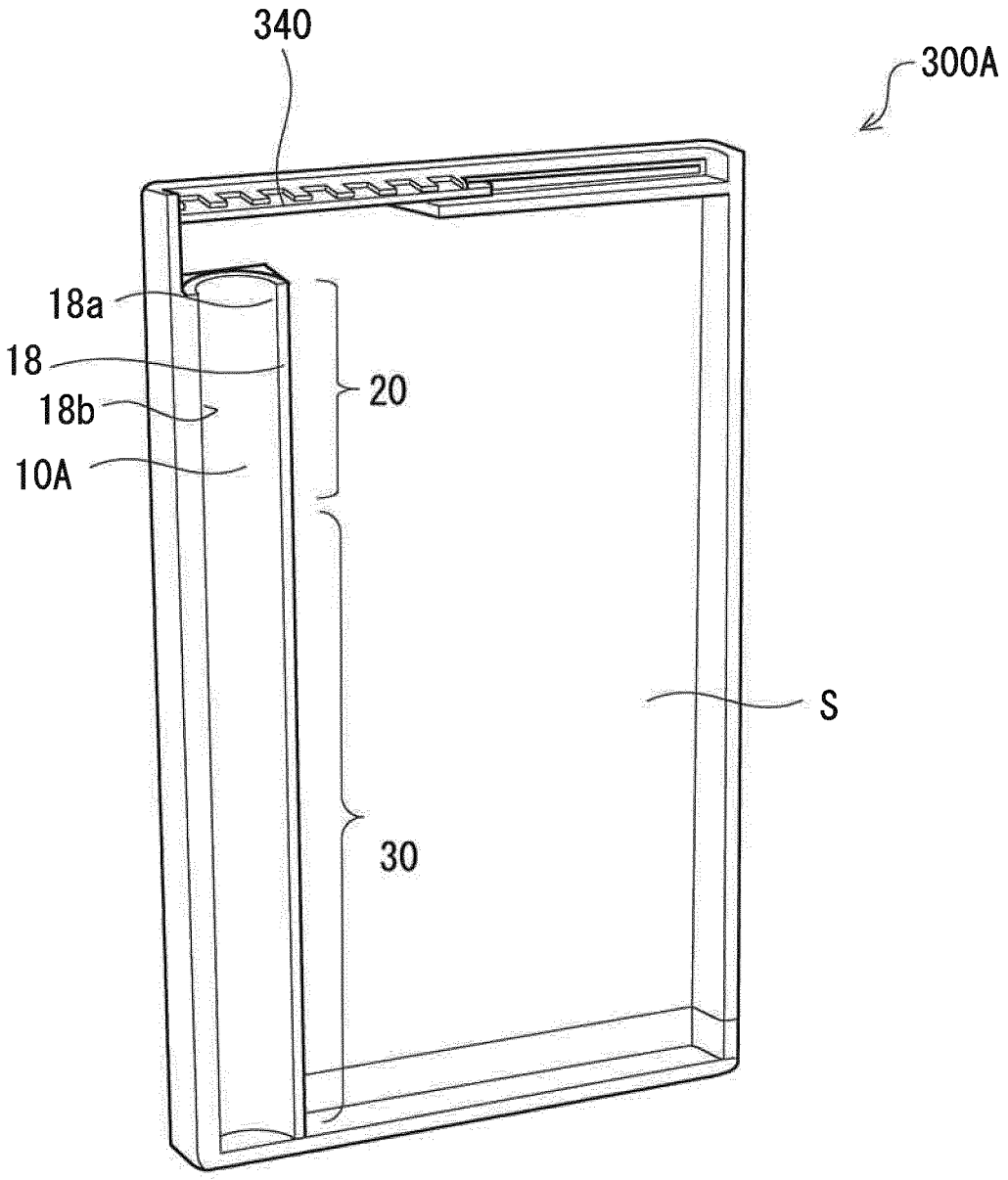


FIG. 24

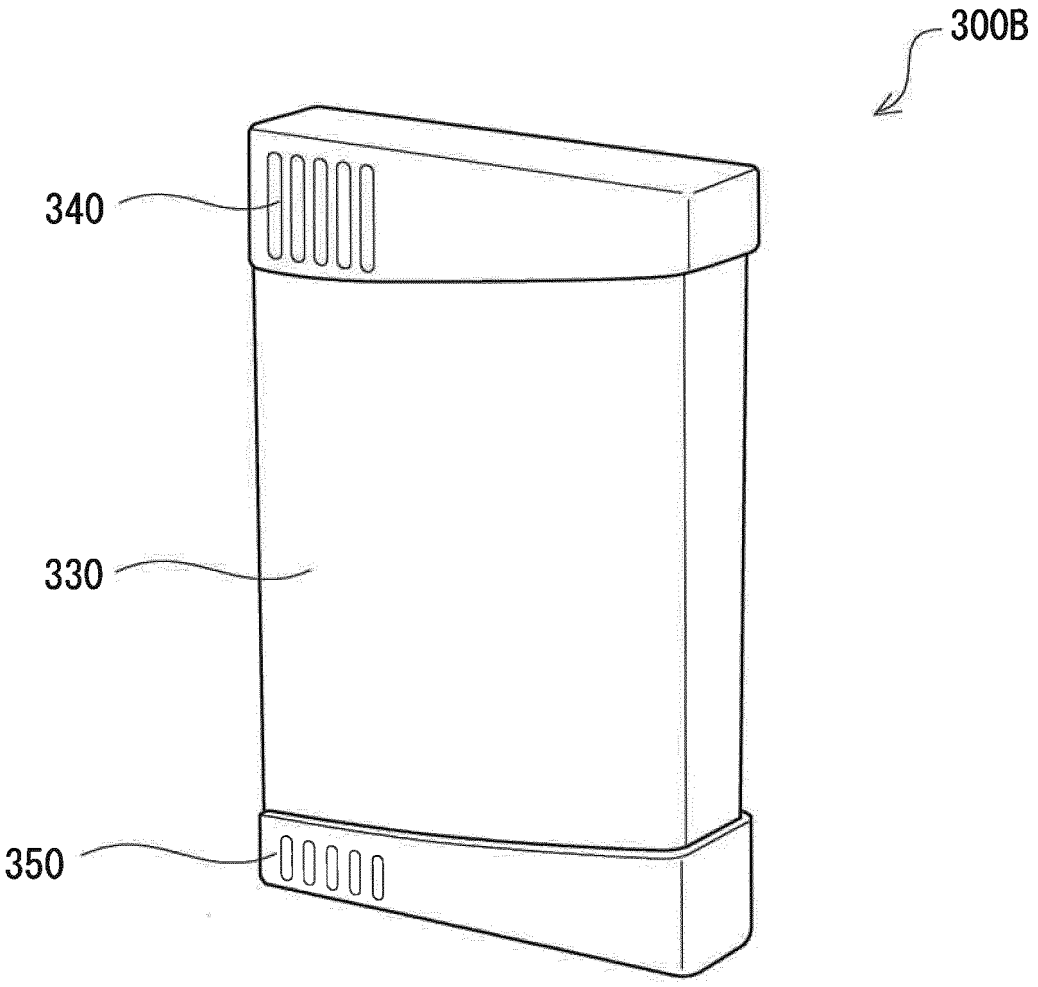
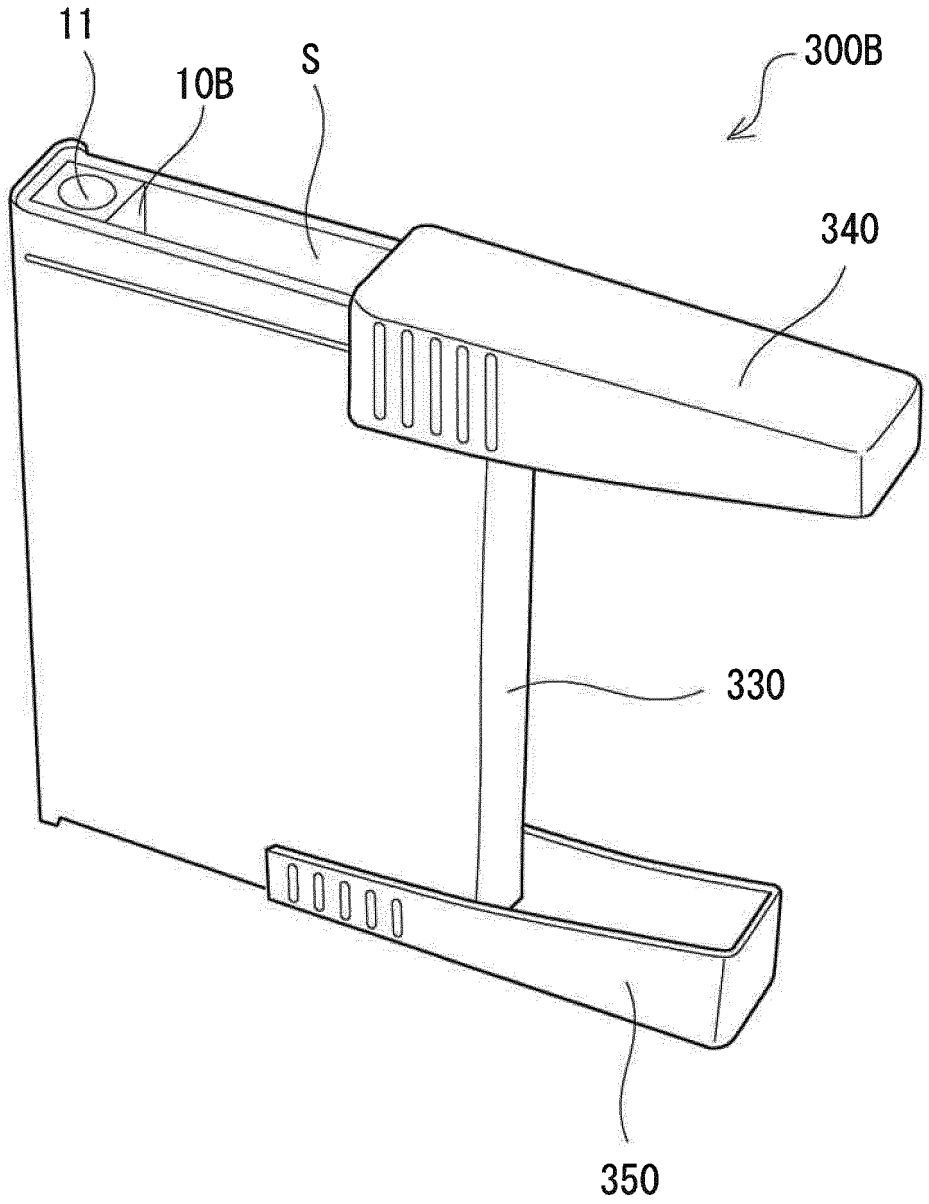


FIG. 25



INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2015/080540

A. CLASSIFICATION OF SUBJECT MATTER
A24F19/00(2006.01)i, *A24F15/18*(2006.01)i, *A24F19/10*(2006.01)i, *A24F19/14*(2006.01)i, *A24F47/00*(2006.01)i, *B65D85/10*(2006.01)i

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)
A24F1/00-A24F47/00, B65D85/10

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2016
Kokai Jitsuyo Shinan Koho 1971-2016 Toroku Jitsuyo Shinan Koho 1994-2016

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	JP 3165886 U (Hiroshi NOGUCHI), 10 February 2011 (10.02.2011), entire text; all drawings (Family: none)	1-10
A	JP 11-501599 A (Rothmans International Services Ltd.), 09 February 1999 (09.02.1999), entire text; all drawings & WO 1997/009250 A1	1-10
A	WO 2014/136721 A1 (Japan Tobacco Inc.), 12 September 2014 (12.09.2014), entire text; all drawings & TW 201507634 A	1-10

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

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
05 January 2016 (05.01.16)	19 January 2016 (19.01.16)
Name and mailing address of the ISA/ Japan Patent Office 3-4-3,Kasumigaseki,Chiyoda-ku, Tokyo 100-8915,Japan	Authorized officer Telephone No.

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

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- JP 9322750 A **[0004]**
- JP 2007259839 A **[0004]**
- JP 2004115123 A **[0004]**
- JP 2001086973 A **[0004]**