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(54) **CAPSULE FOR SMOKING ARTICLE, FILTER INSTALLED WITH SAID CAPSULE FOR SMOKING ARTICLE, AND SMOKING ARTICLE PROVIDED WITH SAID FILTER**

(57) In a capsule for a smoking article in a substantially tubular shape that is installed in a filter for the smoking article, a tubular circumferential wall, and a pair of end walls that respectively close both ends of the circumferential wall are included, a liquid is encapsulated in an interior, at least one of the end walls is elastically deformable, and groove-shaped thin-walled regions formed of straight lines or curved lines are provided in the one end wall to meet at two or more meeting points.

FIG. 2A

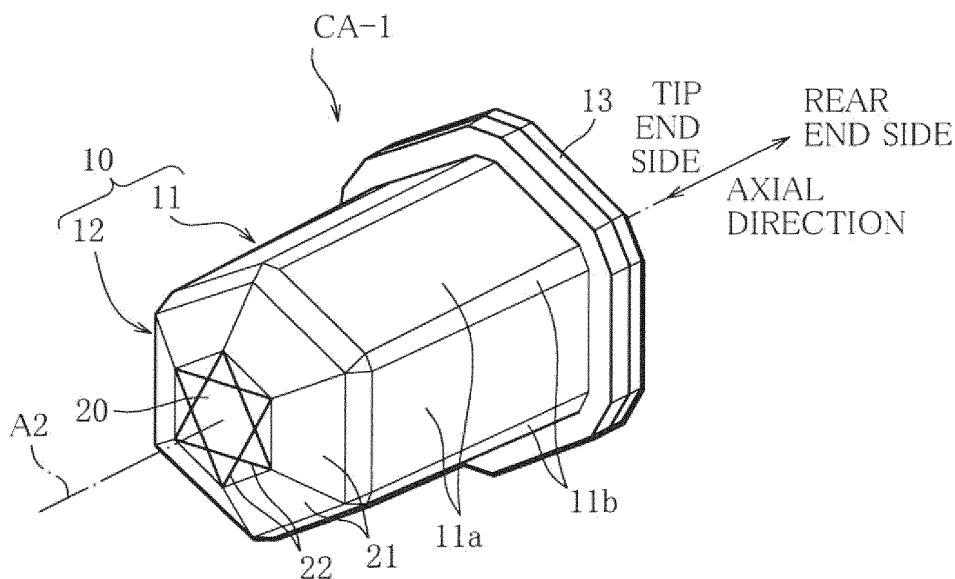
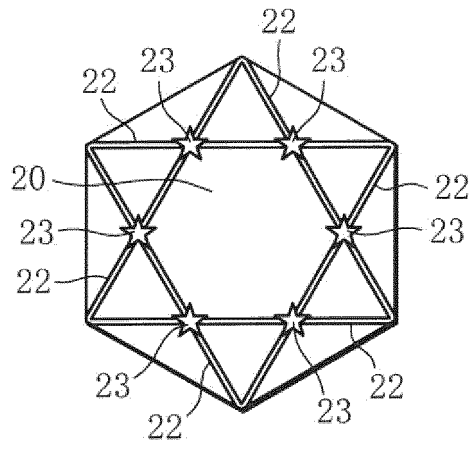


FIG. 2B



Description**Technical Field**

[0001] The present invention relates to a capsule for a smoking article with a liquid encapsulated therein, which is suitable for being adopted in a smoking article such as a filter-tipped cigarette, a filter in which the capsule for a smoking article is installed, and a smoking article equipped with the filter.

Background Art

[0002] By allowing a liquid, such as water or an aqueous solution having a flavor-emitting additive dissolved in water, to permeate into the filter of a smoking article such as a filter-tipped cigarette when the smoking article is smoked, it is possible to improve the flavor characteristics of mainstream smoke or to add a flavor different from that of the mainstream smoke. In such cases, the liquid is previously encapsulated into a capsule to be incorporated into a filter body, and a user breaks the capsule before smoking the smoking article, to allow the liquid to gush out from the capsule and permeate into the filter. Specifically, the user applies force externally to the capsule by holding, between his/her fingers, the capsule from outside the filter, to break the capsule.

[0003] Capsules made of polysaccharide such as gelatin are, however, soluble in water and are not suited for encapsulating hydrophilic liquids, and the use of such water-soluble capsules is generally restricted to encapsulation of hydrophobic flavorings. On the other hand, capsules made of synthetic resin are insoluble in water, are suited for encapsulating hydrophilic liquids and have excellent shape stability. However, since capsules made of synthetic resin are hard, compared with water-soluble capsules, various means stated below have been contrived to facilitate breaking of the capsules.

[0004] In the case of a capsule having a cylindrical shape, for example, a plurality of long radial grooves are formed in one end wall of the capsule, and when the capsule is applied externally with a crushing force, the grooves split off and allow the liquid contained in the capsule to gush out (Patent Document 1).

[0005] Also, a capsule may be provided with a seal so that when the capsule is applied with external force, the seal may be broken to allow the liquid contained in the capsule to gush out (Patent Document 2).

[0006] Further, a capsule has been known which is obtained by fitting two capsule halves together via an annular seal, and when the capsule is squeezed, the seal is broken and allows the liquid contained in the capsule to gush out (Patent Document 3).

Prior Art Document**Patent Document**

5 [0007]

Patent Document 1: Japanese Examined Patent Publication No. H06-2164

Patent Document 2: Japanese Patent No. 2515794

10 Patent Document 3: National Publication of International Patent Application No. 2008-528053

Summary of the Invention

15 **Problems to be solved by the Invention**

[0008] However, it is the case that a great force (external force) is still required to break a capsule made of synthetic resin, and it is not easy for a user to crush such a capsule by picking the capsule with his/her fingers. That is to say, the aforementioned conventional techniques facilitate breaking of the capsules to some extent, but a considerable force is still required to tear the grooves apart or to break the seals. Thus, there has been a demand for capsules that are easier to break.

20 [0009] An object of the present invention is to provide a capsule for a smoking article with crush easiness (breaking easiness) being improved, a filter using the capsule for a smoking article like this, and a smoking article such as a filter-tipped cigarette.

Solution to Problem

Means for Solving the Problems

35 [0010] The aforementioned object is achieved by a capsule for a smoking article in a substantially tubular shape that is installed in a filter of the smoking article, wherein a tubular circumferential wall, and a pair of end walls that respectively close both ends of the circumferential wall are included, a liquid is encapsulated in an interior, at least one of the end walls is elastically deformable, and groove-shaped thin-walled regions that are formed of straight lines or curved lines are provided in the one end wall to meet at two or more meeting points.

Advantageous Effects of the Invention

[0011] As for the capsule for a smoking article according to the present invention, a user can easily break the capsule, and thereby the liquid which is allowed to gush out of the capsule can be caused to permeate into a filter or a tobacco efficiently.

55 [0012] Accordingly, with the filter in which the capsule for a smoking article like this is installed, and the smoking article such as a filter-tipped cigarette adopting the filter, the user can easily crush the capsule and enjoy the improved smoking flavor.

Brief Description of the Drawings

[0013]

FIG. 1 is a view illustrating a case where a filter in which a capsule for a smoking article to be a first embodiment according to the present invention is installed is adopted in a cigarette as the smoking article.

FIG. 2A is a perspective view of the capsule for a smoking article to be the first embodiment.

FIG. 2B is an enlarged front view of a central portion of a tip end wall in FIG. 2A.

FIG. 3A is a perspective view of a capsule for a smoking article to be a second embodiment.

FIG. 3B is an enlarged front view of a central portion of a tip end wall in FIG. 3A.

FIG. 4 is an explanatory diagram for explaining a state where filters in which capsules for smoking articles shown in the first embodiment, the second embodiment and Patent Document 1 are installed were produced, and evaluated.

FIG. 5A is an enlarged front view illustrating a first modification example of the tip end wall.

FIG. 5B is an enlarged front view illustrating a second modification example of the tip end wall.

Mode for Carrying out the Invention

[0014] Hereinafter, preferable embodiments of the present invention will be described with reference to the drawings. First of all, a first embodiment will be described.

[0015] FIG. 1 illustrates a case where a filter in which a capsule for a smoking article to be the first embodiment according to the present invention is installed is adopted in a cigarette CG as the smoking article, FIG. 2A illustrates a capsule CA-1 to be installed in a filter FL of the cigarette CG, and FIG. 2B illustrates a front view enlarging a central portion of a tip end wall of the capsule CA-1.

[0016] The cigarette CG, which is a filter-tipped cigarette as shown in FIG. 1, is constituted by a cigarette body 100 obtained by rolling shredded tobacco in thin paper into a rod shape, and the filter FL disposed at one end of the cigarette body 100. The filter FL has a filter body constituted by a flexible casing 201 and two cylindrical (rod-shaped) filter elements 202 and 203 accommodated in the interior of the casing 201. The casing 201 is obtained, for example, by rolling a sheet material into a tubular shape and gluing overlapping edges of the rolled sheet material together. The cigarette body 100 and the filter LF are connected together by tip paper 101 wound around both of the filter FL and a part of the cigarette body 100, to obtain a single filter-tipped cigarette CG.

[0017] A first filter section 202 serving as a first filter element and a second filter section 203 serving as a second filter element are disposed within the casing 201 and

set apart from each other so as to be located at the opposite ends of the casing 201. The filter sections 202 and 203 may be made of the same filter material as that ordinarily used in filter-tipped cigarettes, namely, acetate fiber, and may further contain charcoal. Alternatively, paper filter may be used for that purpose. The filter sections 202 and 203 may be made of the same material or of different materials.

[0018] The first filter section 202 located at one end of the casing 201 adjoins the cigarette, and the second filter section 203 located at the other end of the casing 201 constitutes a mouth end. The first filter section 202 and the second filter section 203 are spaced from each other, as stated above, to define an accommodation space 204 therebetween. Thus, strictly speaking, the filter body is constituted by the first filter section 202, the second filter section 203, and the accommodation space 204 located between the first and second filter sections. The capsule CA-1 is disposed in the interior of the accommodation space 204.

[0019] Here, also referring to FIG. 2A illustrating the capsule CA-1, the capsule CA-1 is roughly in a shape of a substantially hexagonal prism (a substantially tubular shape), and a liquid is encapsulated in an interior of the capsule CA-1 by a lid member. Explanation will be made hereinafter, with a main axis direction of the cigarette CG and a filter body section referred to as an axial direction hereinafter, and with a side of the cigarette body 100 in the axial direction set as a tip end side, and a side of the filter FL in the axial direction set as a rear end side, in a state where the filter FL in which the capsule CA-1 is installed is provided at the cigarette CG.

[0020] The capsule CA-1 is constituted of a capsule body 10 that is formed of a tubular circumferential wall 11 and a tip end wall 12 (an end wall) that closes a front end opening of the circumferential wall 11, and a lid member 13 (an end wall) that closes a rear end opening of the circumferential wall 11.

[0021] In the interior of the accommodation space 204, the capsule CA-1 of the above constitution is accommodated in such a manner that an axial line A1 of the filter body section shown by the alternate long and short dash line in FIG. 1, and an axial line A2 of the capsule CA-1 shown by the alternate long and short dash lines in FIG. 1 and FIG. 2A are located on the same axis. The capsule CA-1 does not always have to have the axial line A2 located on the same axis as the axial line A1 of the filter body section, and can be accommodated in such a manner that the axial line A1 of the filter body portion and the axial line A2 of the capsule CA-1 are parallel with each other.

[0022] The circumferential wall 11 of the capsule body 10 has a section perpendicular to the axial direction formed into a shape of a substantially hexagonal prism, and has six circumferential wall surfaces 11a and connecting sections 11b that are formed among the respective circumferential wall surfaces 11a. Though not illustrated, on an inner surface of the connecting section 11b,

a groove along the axial direction is formed, and thereby the capsule body 10 is easily deformed with respect to an external force in a direction perpendicular to the axial direction.

[0023] The tip end wall 12 of the capsule body 10 is constituted of a central section 20 that forms a plane perpendicular to the axial direction in an axial portion, and a peripheral section 21 that extends by being inclined to the axial direction up to a tip end of the circumferential wall 11 from the central section 20.

[0024] The central section 20 is a plane in a shape of an equilateral hexagon that is similar to a sectional shape perpendicular to the axial direction of the circumferential wall 11 of the capsule body 10. The peripheral section 21 is constituted of six surfaces that extend from respective sides of the central section 20 to sides at tip end sides of the respective circumferential wall surfaces 11a.

[0025] A plurality of groove sections 22 forming straight-line shapes are formed on an outer surface of the central section 20. The groove section 22 is a thin-walled region which is formed to be thinner than other regions in the central section 20, and is a groove with a V-shaped section or a U-shaped section, for example.

[0026] As illustrated in FIG. 2A and FIG. 2B, in the present embodiment, the groove sections 22 draw a hexagram in which two equilateral triangles are upright in normal and inverted orientations, by six straight lines that connect vertexes of the central section 20 in the shape of an equilateral hexagon. Accordingly, in the central section 20, six intersecting points 23 (meeting points) at which the straight-line groove sections 22 meet in such a manner as to intersect one another are formed, as shown by star symbols in FIG. 2B.

[0027] The capsule body 10 of the capsule CA-1 which is constituted as above is formed from an elastically deformable material, and is configured to be broken from the tip end wall 12 when receiving an external force so that the above described content WA flows out. As a preferable synthetic material of the capsule body 10, it is desirable to use a plastic material for food that is any one selected from a group constituted of polyethylene, polypropylene, polyvinyl chloride, polystyrene, polyethylene terephthalate, polyvinyl alcohol and polyamide, for example.

[0028] The lid member 13 is reliably fixed to the capsule body 10 by using an adhesive, thermal fusion treatment or the like so that the content in the capsule CA-1 does not leak out. The same material as the capsule body 10 may be used, but a film material such as a laminate film is used, and the opening may be closed with heat seal. When such a seal film is adopted, the seal film can be bonded to an opening edge of the capsule body 10 by means of a thermoplastic adhesive. As such adhesive, hot-melt adhesive containing, as its main agents, an adhesive polyolefin resin, a low-molecular-weight polyethylene and EVA (ethylene vinyl alcohol) may be used, for example. Meanwhile, the lid member 13 may be formed into a shape which is flattened including a conical shape

protruded inward so as not to be a hindrance when the capsule body 10 is crushed and flattened.

[0029] The liquid to be encapsulated in the capsule CA-1 is not particularly limited and a suitable liquid capable of improving the taste and flavor of cigarettes may be selected. For example, any of water, hydrophilic flavorings and hydrophobic flavorings may be used. In the case of a hydrophobic flavoring, it may be used in the form of emulsion or be used in combination with a solvent such as propylene glycol or ethanol. More specifically, the liquid to be used may be a solution prepared by dissolving sugar, tobacco extract, fragrance and the like in water, or a water-based solution such as brandy, by way of example. The liquid may be mixed with a chemical solution for preventing deterioration, where necessary. Further, minute solids such as microcapsules (perfume capsules) having perfume encapsulated therein may be used as the liquid, and such perfume capsules may be suspended in water to be used as the liquid.

[0030] Preferably, a water-resistant sheet material is used for at least one of the casing 201 and the tip paper 101 so that the liquid may be prevented from leaking to the outside.

[0031] The capsule CA-1 which is constituted as above is broken from the tip end wall 12 by the filter FL of the cigarette CG receiving external forces F (forces that pick up the filter section with fingers) by a user as shown by white arrows in FIG. 1, and an internal liquid gushes out to the first filter section 202 as shown by a black thick arrow in FIG. 1.

[0032] In more detail, since the groove sections 22 are formed to have the plurality of intersecting points 23 in the central section 20 of the tip end wall 12, whereby the respective intersecting points 23 become especially fragile portions so that when the capsule CA-1 receives the external forces F, the capsule CA-1 deforms significantly at the respective intersecting points 23, and the groove sections 22 are broken by tensile forces in the respective intersecting points 23. Since the intersecting points 23 are formed at two spots or more in the central section 20, deformations occur to the respective spots, and the central section 20 can be broken even with a weak force.

[0033] From the above, in the capsule CA-1 in the first embodiment, a user can easily break the capsule CA-1, whereby the liquid which is allowed to gush out from the capsule CA-1 can be caused to permeate into the filter and the cigarette efficiently.

[0034] Accordingly, with the smoking article such as the filter-tipped cigarette CG which adopts the filter FL in which the capsule CA-1 like this is installed, the user can easily crush the capsule CA-1 and enjoy an improved smoke flavor.

[0035] Next, a second embodiment will be described.

[0036] FIG. 3A is a perspective view of a capsule for a smoking article to be the second embodiment according to the present invention, and FIG. 3B is an enlarged front view of a central section of a tip end wall. The capsule in the second embodiment is adopted in a cigarette

of a constitution similar to the above described first embodiment, a constitution of the capsule is the same except for the tip end wall, and a different part will be mainly explained.

[0037] As shown in FIG. 3A and FIG. 3B, a capsule CA-2 in the second embodiment is constituted of a capsule body 14 formed of a tubular circumferential wall 15 and a tip end wall 16 (an end wall) that closes a front end opening of the circumferential wall 15, and a lid member 17 (an end wall) that closes a rear end opening of the circumferential wall 15.

[0038] The tip end wall 16 is constituted of a central section 30 and a peripheral section 31, and disposition of groove sections 32 that are formed on an outer surface of the central section 30 differs from that of the above described first embodiment.

[0039] The groove section 32 of the second embodiment is formed of three straight-line thin-walled regions in total that are one straight-line first groove section 32a that connects two vertexes so as to pass through an axis in the central section 30 of the hexagon, and two straight-line second groove sections 32b that connect two vertexes so as to be orthogonal to the first groove section 32a, as shown in FIG. 3B in detail. Accordingly, in the central section 30, as shown by star symbols in FIG. 3B, an intersecting point 33 at which two straight-line grooves that are the first groove section 32a and each of the second groove sections 32b out of the thin-walled regions meet is formed at each of two spots, and the meeting points at the two spots are each provided by the first groove section 32a and the second groove section 32b being orthogonal to each other.

[0040] That is to say, in the capsule CA-2 in the second embodiment, the groove sections 32a and 32b are formed so as to have the plurality of intersecting points 33 in the central section 30 of the tip end wall 16, whereby the respective intersecting points 33 become especially fragile portions, the capsule CA-2 significantly deforms at the respective intersecting points 33 when receiving an external force, and by the tensile forces at the respective intersecting portions 33, the groove sections 32a and 32b are broken. Since the intersecting points 33 are formed at the two spots in the central section 30, deformations occur to the respective spots, and the central section 30 can be broken even with a weak force. In this manner, in the second embodiment, a similar effect to that of the above described first embodiment can be also obtained.

(Production, evaluation)

[0041] Here, the above described capsules CA-1 and CA-2 which are described as the above described first embodiment and second embodiment were produced and evaluated, and therefore, results thereof will be described hereunder.

[0042] In the evaluation, the capsules CA-1 and CA-2 in which distilled water was adopted as the liquid to be

encapsulated into the capsules were produced, and breaking strengths were measured. The capsule bodies were produced by injection molding with use of a low-density polystyrene that is a plastic material for food. 90 percent distilled water (v/v) was poured into the capsule bodies, and the capsule bodies were completely sealed by heat-sealing the open ends with a polyamide/low density polyethylene laminate film (KIMURA-TEC, NY/LDPE, 60 μ m), whereby the capsules CA-1 and CA-2 containing the distilled water were obtained.

[0043] Further, as a comparative example, a capsule CA-0 of the constitution described in Patent Document 1 which is cited as the above described prior art document was used. The capsule CA-0 is formed into a substantially tubular shape, and a plurality of groove sections that extend radially from an axial portion are formed on an inner surface of one end wall. The other sections of the capsule CA-0 were produced by the same material and production method as the capsules CA-1 and CA-2 in the first and second embodiments, and similar distilled water was encapsulated in the capsule CA-0.

[0044] The breaking strengths of the respective capsules were measured by means of a creep meter (RHEOMETER II, made by YAMADEN co. Ltd.). The state and the result of measurement are shown in FIG. 4.

[0045] As shown in FIG. 4, in the case of the comparative example, the breaking load of the capsule CA-0 was 95.6 N, whereas in the case of the capsule CA-1 of the first embodiment, the breaking load was 36.5 N, and in the case of the capsule CA-2 of the second embodiment, the breaking load was 24.8 N. From the result, it has been confirmed that the forces necessary for breakage are drastically reduced in the capsules CA-1 and CA-2 according to the present invention. It is conceivable that in particular, the capsule CA-2 of the second embodiment has only the two intersecting points 33, but the intersecting angles are right angles (90°), and therefore, the capsule CA-2 can be broken with a weaker force than the capsule in which the intersecting angles are not right angles as the capsule CA-1 of the first embodiment.

[0046] That is the explanation of the first embodiment and the second embodiment, but the embodiment of the present invention is not limited to the above described constitutions.

[0047] In the respective embodiments described above, the capsules CA-1 and CA-2 are formed into substantially hexagonal shapes, but the shapes of the capsules are not limited thereto as long as the circumferential walls are tubular, and the entire capsules are substantially tubular. For example, as the substantially tubular capsules, polygonal prism shapes are included, and polygonal shapes that have the same number of plane sides as or a larger number of plane sides than a pentagonal prism are preferably adopted. Other than the above, the shape of the capsule may be formed into a cylindrical shape in accordance with the sectional shape of the filter. The tubular shape of the circumferential wall is made a polygonal prism shape or a cylindrical shape in accord-

ance with the shape of the capsule.

[0048] Further, in the above described respective embodiments, the tip end walls 12 and 16 are constituted of the central sections 20 and 30 and the peripheral sections 21 and 31, but each of the tip end walls may be formed of only one plane, or each of the tip end walls may be a curved surface such as a spherical surface. When each of the tip end walls is formed of only one plane or a curved surface such as a spherical surface in this way, the central sections 20 and 30 as in the above described embodiments are not present, and groove sections are formed in each of the tip end walls.

[0049] Further, in the above described respective embodiments, the groove sections 22 and 32 are formed on the outer surfaces of the central sections 20 and 30 of the tip end walls 12 and 16, but may be formed on the inner surfaces of the central sections of the tip end walls, or on the inner surfaces of the tip end walls in the case of the tip end walls that do not have the central sections, for example.

[0050] Further, disposition of the groove sections, the number of the intersecting points and the like are not limited to those in the above described respective embodiments.

[0051] Referring to FIGS. 5A and 5B here, for example, FIG. 5A illustrates an enlarged front view illustrating a first modification example of the tip end wall, and FIG. 5B illustrates an enlarged front view showing a second modification example of the tip end wall, respectively. In capsules of the first modification example and the second modification example, circumferential walls are in cylindrical shapes, and tip end walls and lid members are formed into disk shapes.

[0052] In the first modification example illustrated in FIG. 5A, five vertical grooves 42a and five lateral grooves 42b are disposed in a lattice-like fashion in a tip end wall 40. Accordingly, in the first modification example, intersecting points 43 at which two kinds of straight-line grooves that are the vertical grooves 42a and the lateral grooves 42b are orthogonal to one another are formed at 25 spots.

[0053] In the second modification example illustrated in FIG. 5B, six straight-line first groove sections 52a that draw a hexagram as in the above described first embodiment, and second straight-line groove sections 52b that pass through an axis and connect respective vertexes in a hexagonal part in the hexagram are disposed on the tip end wall 50. Accordingly, in the second modification example, intersecting points 53 of the first groove sections 52a and the second groove sections 52b are formed at seven spots.

[0054] In the capsules in which the groove sections and the intersecting points are formed of the first modification example and the second modification example as above, similar effects to those of the above described respective embodiments can be also provided.

[0055] Further, by making the groove sections orthogonal to one another at the intersecting points as in the

second embodiment and the first modification example described above, the capsules can be broken with weaker forces, but the groove sections do not have to be orthogonal to one another at all the intersecting points, and may be formed to be orthogonal one another at some of the intersecting points. Further, when three or more groove sections meet, at least two of the groove sections can be orthogonal to each other. Further, one groove does not have to intersect the other groove in such a manner as to be across the other groove, but may meet the other groove in a T-shape or a Y-shape, for example.

[0056] Further, in the above described respective embodiments, the groove sections 22 and 32 are formed in the tip end walls 12 and 16 on one sides of both the end walls of the capsules CA-1 and CA-2, but when an internal liquid is allowed to gush out to the second filter section 203, for example, groove sections that intersect each other at two or more spots may be formed in each of the lid members 13 and 17 corresponding to the other end walls.

Alternatively, groove sections that intersect each other at two or more spots may be formed in each of both the end walls.

[0057] Further, in the above described embodiments, the groove sections 22 and 32 are formed into the shapes of straight lines, but the groove sections may be formed into linear shapes, and groove sections in shapes of curved lines may be adopted, for example. In the case of adopting the shape of a curved line, one curved line can be made to intersect at two or more spots, and the degree of freedom of disposition of groove sections can be enhanced.

[0058] Further, in each of the above described respective embodiments, the case where the capsule-installed type filter is applied to the filter-tipped cigarette CG is described. However, the capsule for a smoking article according to the present invention is not limited to the case of application to the filter attached to the cigarette like this. That is, the capsule may be constituted as the one that is installed in an independent filter product.

[0059] To stabilize the position of each capsule CA (CA-1, CA-2) more reliably, fiber that is used to form the filter elements may be filled in the gap of the accommodation space 204, if necessary, to prevent positional shift of the capsule. Also, protrusions for positioning the capsule CA may be formed on the inner surface of the casing 201 so that the capsule CA may be pressed radially inward by the protrusions to be set in position. Where the capsule CA can be stably positioned in this manner, either one or both of the first and second filter sections may be omitted as the case may be. In this regard, in the foregoing embodiments explained above, the space defined between the first and second filter sections is used as the accommodation space of the filter body. This configuration is, however, just a preferred example and the accommodation space may be configured in a different way.

Explanation of Reference Signs**[0060]**

FL	Filter	5
CA (CA-1, CA-2)	Capsule	
CG	Cigarette	
10, 14	Capsule body	
11, 15	Circumferential wall	
12, 16, 40, 50	Tip end wall	10
13, 17	Lid member	
20, 30	Central section	
21, 31	Peripheral section	
22, 32	Groove section	
23, 33, 43, 53	Intersecting point (meeting point)	15
32a, 52a	First groove section	
32b, 52b	Second groove section	
42a	Vertical groove	
42b	Lateral groove	
100	Cigarette	20
101	Tip paper	
201	Casing	
202	First filter section	
203	Second filter section	
204	Accommodation space	25

smoking article is accommodated in the accommodation space with an axial line of the filter body section and an axial line of the capsule being made parallel with each other.

4. A smoking article, comprising the filter in which the capsule for a smoking article is installed according to claim 3.

Claims

1. A capsule for a smoking article in a substantially tubular shape that is installed in a filter of a smoking article, wherein a tubular circumferential wall, and a pair of end walls that respectively close both ends of the circumferential wall are included, a liquid is encapsulated in an interior, at least one of the end walls is elastically deformable, and groove-shaped thin-walled regions that are formed of straight lines or curved lines are provided in the one end wall to meet one another at two or more meeting points. 30 35 40
2. The capsule for smoking article according to claim 1, wherein the groove-shaped thin-walled regions include at least two straight-line sections or curved-line sections that form the meeting points, at least one of the two or more meeting points is provided in such a manner that these straight-line sections or curved-line sections are orthogonal to each other. 45
3. A filter in which a capsule for a smoking article is installed, comprising: 50
 - the capsule for a smoking article according to claim 1 or 2; and
 - a substantially cylindrical filter body section including an accommodation space in which the capsule is accommodated, 55
 - wherein the substantially tubular capsule for a

FIG. 1

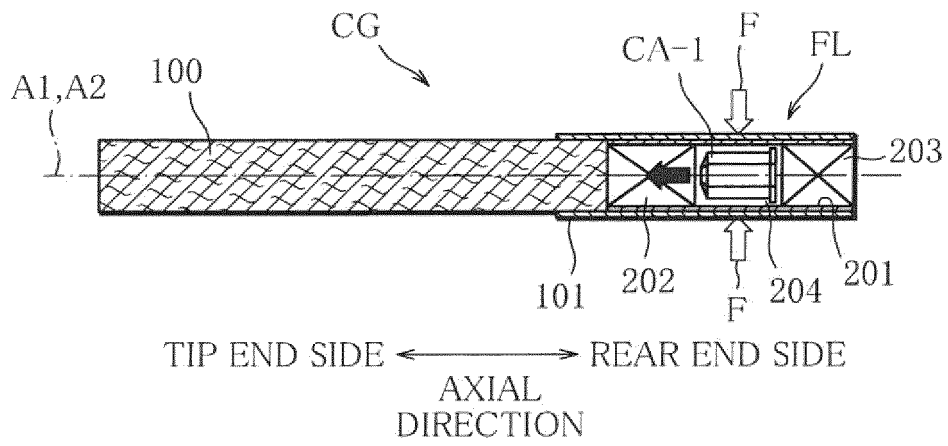


FIG. 2A

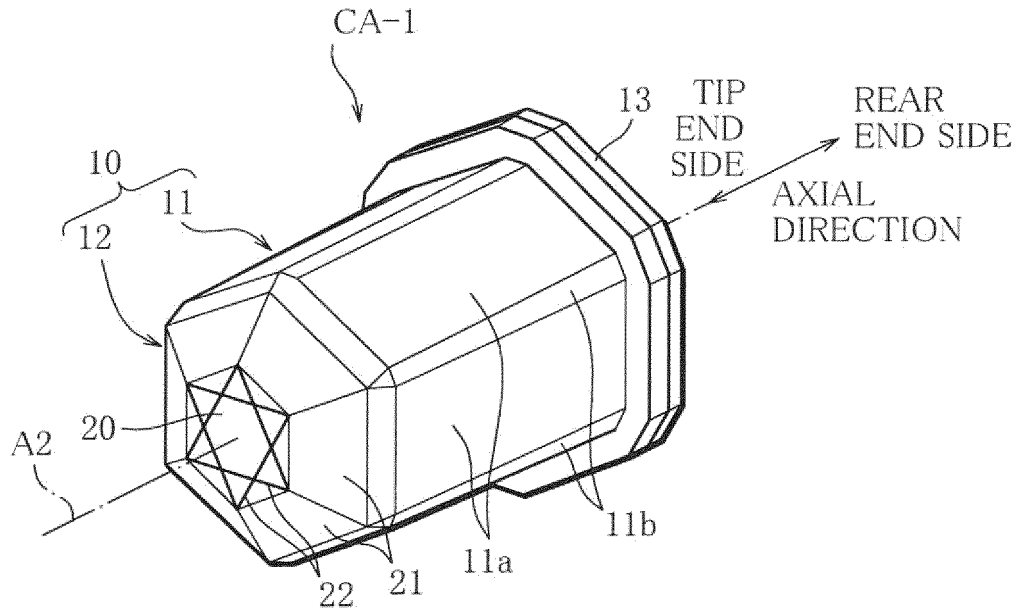


FIG. 2B

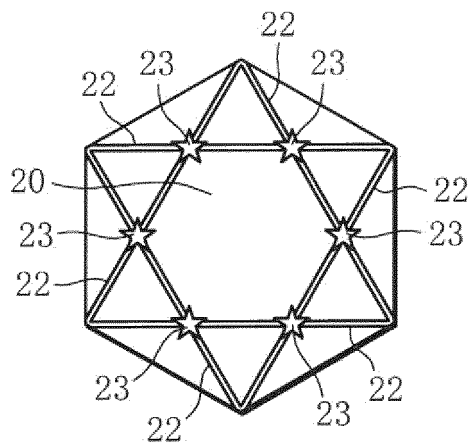


FIG. 3A

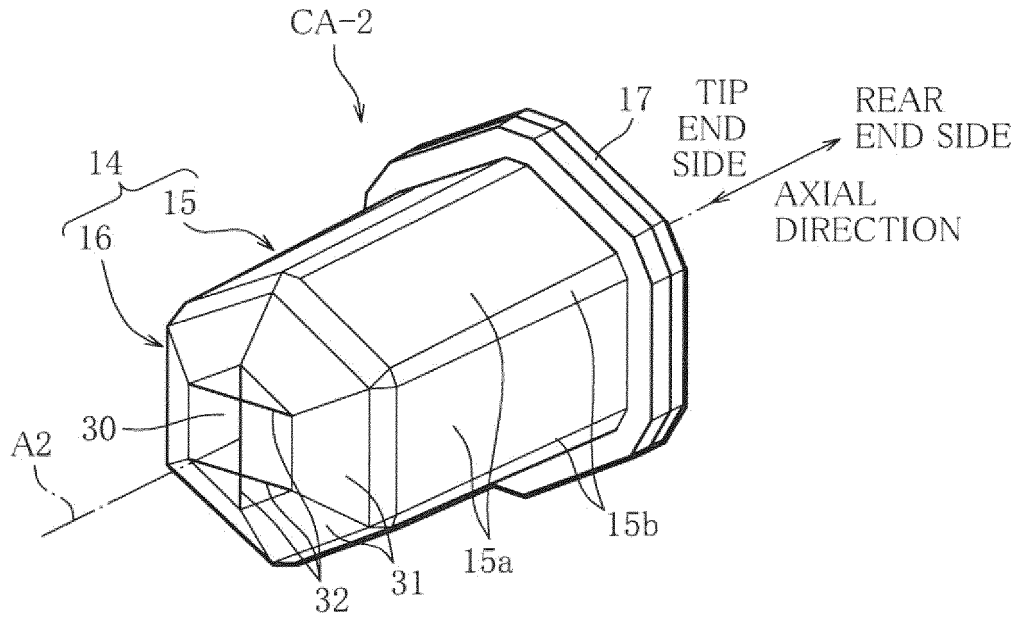


FIG. 3B

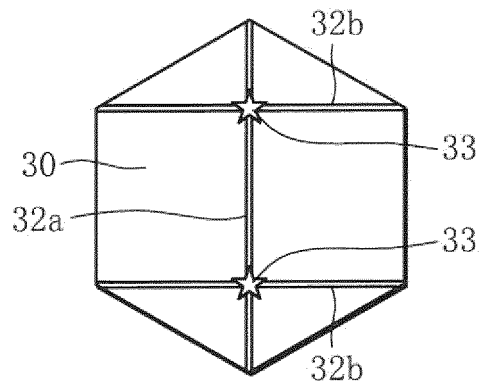


FIG. 4

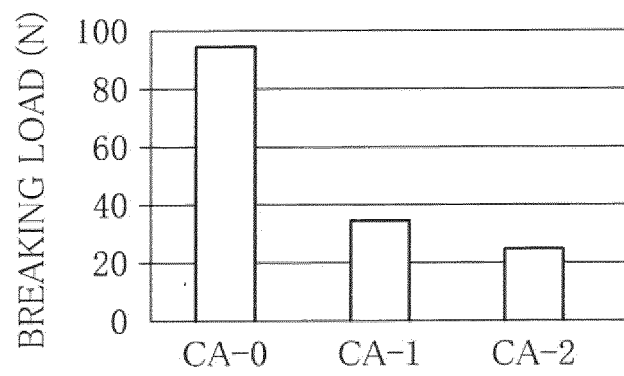


FIG. 5A

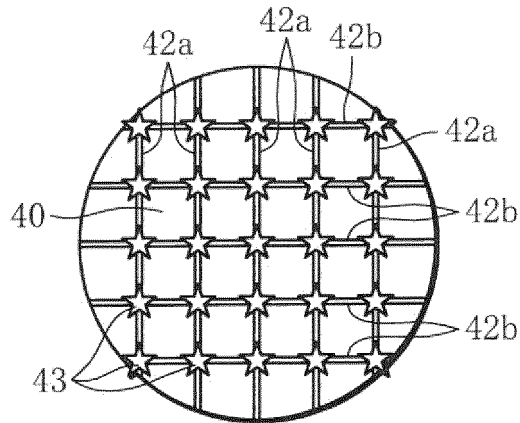
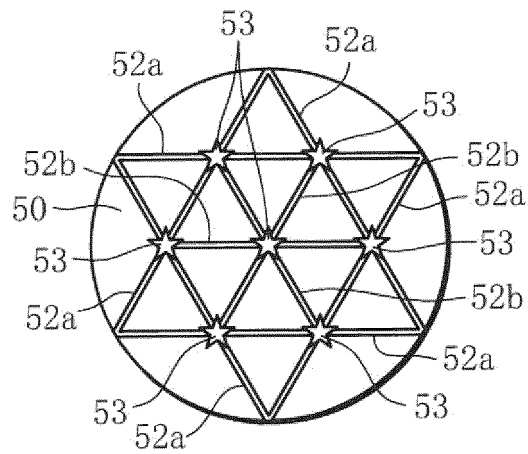


FIG. 5B



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2014/063601

5	A. CLASSIFICATION OF SUBJECT MATTER A24D3/04(2006.01)i, A24D3/06(2006.01)i	
	According to International Patent Classification (IPC) or to both national classification and IPC	
10	B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) A24D3/04, A24D3/06	
15	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 1996-2014 Kokai Jitsuyo Shinan Koho 1971-2014 Toroku Jitsuyo Shinan Koho 1994-2014	
	Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)	
20	C. DOCUMENTS CONSIDERED TO BE RELEVANT	
	Category*	Citation of document, with indication, where appropriate, of the relevant passages
25	Y	WO 2013/061888 A1 (Japan Tobacco Inc.), 02 May 2013 (02.05.2013), paragraphs [0018], [0020]; fig. 2 (Family: none)
30	Y	JP 64-37347 A (Dainippon Printing Co., Ltd.), 08 February 1989 (08.02.1989), fig. 2, 3 & US 4865056 A & EP 276021 A2 & DE 3883017 A & PH 25061 A & HK 84894 A & KR 10-1991-0000804 B & KR 10-1991-0007961 B
35		Relevant to claim No. 1-4 1-4
40	<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.	
45	* Special categories of cited documents:	"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
	"A" document defining the general state of the art which is not considered to be of particular relevance	"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
	"E" earlier application or patent but published on or after the international filing date	"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
	"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)	"&" document member of the same patent family
	"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	
50	Date of the actual completion of the international search 18 June, 2014 (18.06.14)	Date of mailing of the international search report 01 July, 2014 (01.07.14)
55	Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
	Facsimile No.	Telephone No.

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INTERNATIONAL SEARCH REPORT

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5 C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
10 A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 161257/1980 (Laid-open No. 84898/1982) (Toyota Motor Co., Ltd.), 25 May 1982 (25.05.1982), fig. 4 (Family: none)	1-4
15 A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 74308/1987 (Laid-open No. 186191/1988) (Shiro TSUCHIZAKI), 29 November 1988 (29.11.1988), fig. 1 (Family: none)	1-4
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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP H062164 B [0007]
- JP 2515794 B [0007]
- JP 2008528053 A [0007]