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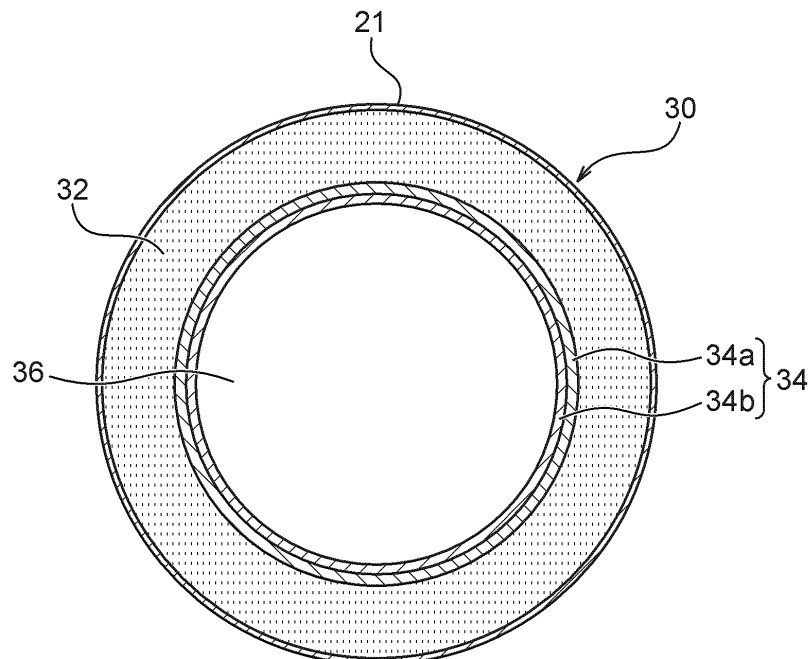
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(54) **FLAVOR-GENERATING SUBSTANCE AND SMOKING SYSTEM**

(57) A flavor generation article configured to generate a flavor by being heated is provided. This flavor generation article includes a through-hole in which a heater can be inserted, and a tubular elastically deform-

able sheet defining the through-hole. The elastically deformable sheet is elastically deformable in a thickness direction thereof.

Fig. 2



EP 4 437 863 A1

Description

TECHNICAL FIELD

[0001] The present invention relates to a flavor generation article and a smoking system.

BACKGROUND ART

[0002] Conventionally, flavor generation articles used to inhale a flavor or the like without burning a material have been known (for example, PTL 1 and PTL 2). Such a flavor generation article includes a flavor source including tobacco containing a volatile component, and can be directly heated from inside the flavor source by insertion of a heater or the like into the flavor source.

CITATION LIST

PATENT LITERATURE

[0003]

PTL 1: Internal Publication No. 2020/002165

PTL 2: Internal Publication No. 2020/007879

SUMMARY OF INVENTION

TECHNICAL PROBLEM

[0004] A so-called internally heating-type heating device, which heats the flavor source by a heater such as a heating blade, a heating pin, or a susceptor, can directly heat the flavor source to a high temperature. The flavor generation article is required to allow the flavor source to be efficiently heated by such an internally heating-type heating device.

[0005] One of objects of the present invention is to provide a flavor generation article and a smoking system that allow a flavor source to be efficiently heated.

SOLUTION TO PROBLEM

[0006] According to a first aspect, a flavor generation article configured to generate a flavor by being heated is provided. The flavor generation article includes a through-hole in which a heater can be inserted, and a tubular elastically deformable sheet defining the through-hole. The elastically deformable sheet is elastically deformable in a thickness direction thereof.

[0007] According to the first aspect, the elastically deformable sheet can be elastically deformed relative to the heater in the thickness direction to thus facilitate its contact or approach to the heater when the heater is inserted in the through-hole. Due to that, in a case where the elastically deformable sheet includes the flavor or a sheet including the flavor is present inside the elastically deformable sheet, the sheet including the flavor can be

placed to contact or approach the heater further closely, and therefore the flavor generation article can be efficiently heated.

[0008] According to a second aspect, in the first aspect, the elastically deformable sheet has a volume void ratio of 85% or higher and 95% or lower.

[0009] According to the second aspect, the sheet including the flavor can be placed to contact or approach the heater appropriately. A volume void ratio of the elastically deformable sheet lower than 85% causes the elastically deformable sheet to have an excessively strong repulsive force, thereby making it difficult to deform the flavor generation article. Further, in this case, the airflow resistance of the flavor generation article may excessively increase. A volume void ratio of the elastically deformable sheet higher than 95% causes the elastically deformable sheet to have a weak repulsive force, and therefore may result in a reduction in the contact between the inner wall of the flavor generation article and the heater and affect the delivery when the flavor generation article is deformed.

[0010] According to a third aspect, in the first or second aspect, the elastically deformable sheet has airflow resistance of 0 mmH₂O or higher and 150 mmH₂O or lower.

[0011] According to the third aspect, appropriate airflow resistance can be achieved when a user inhales even without a space generated between the heater and the elastically deformable sheet. Airflow resistance of the elastically deformable sheet higher than 150 mmH₂O may lead to excessively high draw resistance, thereby making the user feel uncomfortable when inhaling.

[0012] According to a fourth aspect, in any of the first to third aspects, the elastically deformable sheet is a non-tobacco sheet having a grammage of 30 g/m² or heavier and 100 g/m² or lighter.

[0013] According to the fourth aspect, the sheet including the flavor can be placed in contact with the heater appropriately. A grammage of the elastically deformable sheet lighter than 30 g/m² may lead to, for example, undesirable quick exhaustion of the flavor, or an excessive reduction in the thickness of the elastically deformable sheet to make the elastically deformable sheet, for example, easily breakable in the course of the manufacturing, thereby impairing manufacturing suitability or causing the elastically deformable sheet to be torn when the heater is inserted. A grammage of the elastically deformable sheet heavier than 100 g/m² makes the elastically deformable sheet less bendable, thereby making the flavor generation article less deformable. Further, in this case, the heat capacity increases, which may cause the temperature of the flavor generation article to rise slowly and increase the time taken to get ready for the first puff.

[0014] According to a fifth aspect, in any of the first to fourth aspects, the elastically deformable sheet is a non-tobacco sheet carrying an aerosol source or a flavor generation base material.

[0015] According to the fifth aspect, the aerosol or the

flavor can be generated by efficiently heating the elastically deformable sheet due to the contact or approach of the elastically deformable sheet to the heater.

[0016] According to a sixth aspect, in any of the first to fifth aspects, the elastically deformable sheet is a non-tobacco sheet having a corrugated cross-section as viewed from a longitudinal direction.

[0017] According to the sixth aspect, the elastically deformable sheet can be elastically deformed in the thickness direction thereof due to deformation of the corrugated cross-section of the non-tobacco sheet. Further, because having a space (between waves) along the longitudinal direction thereof, the non-tobacco sheet corrugated in cross-section can define a flow passage in which the flavor or the like generated in the flavor generation article passes through.

[0018] According to a seventh aspect, any of the first to sixth aspects further includes a flavor generation sheet located inside the elastically deformable sheet.

[0019] According to the seventh aspect, the flavor generation sheet located inside the elastically deformable sheet can be placed to contact or approach the heater according to the contact or approach of the elastically deformable sheet to the heater, and therefore the flavor generation sheet can be efficiently heated to generate the aerosol or the flavor.

[0020] According to an eighth aspect, in the seventh aspect, the flavor generation sheet includes a non-tobacco sheet carrying an aerosol source or a flavor generation base material.

[0021] According to the eighth aspect, the aerosol source or the flavor generation base material in the non-tobacco sheet can be efficiently heated to generate the aerosol, the flavor, or the like. In the present disclosure, for example, a tobacco extract, synthetic nicotine, or another known flavoring can be contained as the flavor generation base material carried by the non-tobacco sheet.

[0022] According to a ninth aspect, in the seventh aspect, the flavor generation sheet includes a tobacco sheet.

[0023] According to the ninth aspect, the tobacco sheet can be efficiently heated to generate the aerosol or the flavor.

[0024] According to a tenth aspect, in the seventh aspect, the flavor generation sheet includes a tobacco sheet, and a non-tobacco sheet carrying an aerosol source or a flavor generation base material.

[0025] According to the tenth aspect, the non-tobacco sheet and the tobacco sheet can be efficiently heated to generate the aerosol or the flavor.

[0026] According to an eleventh aspect, any of the first to tenth aspects further includes a first portion configured to generate the flavor by being heated and including the elastically deformable sheet, and a second portion located adjacent to the first portion in the longitudinal direction and configured in such a manner that the flavor generated in the first portion passes therethrough.

[0027] According to the eleventh aspect, the flavor generated in the first portion can pass through the second portion, thereby being cooled in the second portion. As will be used herein, the longitudinal direction can also be referred to as an axial direction of the stick-shaped flavor generation article or an insertion direction of the heater into the flavor generation article.

[0028] According to a twelfth aspect, in the eleventh aspect, the second portion includes a first stopper configured to prevent the elastically deformable sheet from moving from the first portion toward the second portion.

[0029] According to the twelfth aspect, the elastically deformable sheet can be prevented from moving toward the second portion when the heater is inserted into the through-hole. As a result, the flavor generation article can be prevented from being broken when the heater is inserted.

[0030] According to a thirteenth aspect, in the eleventh or twelfth aspect, the elastically deformable sheet includes a second stopper configured to prevent the elastically deformable sheet from moving from the first portion toward an opposite side from the second portion.

[0031] According to the thirteenth aspect, the elastically deformable sheet can be prevented from moving toward the opposite side from the second portion, i.e., the elastically deformable sheet can be prevented from being pulled out of the first portion together with the heater when the heater is extracted from the through-hole. This allows the elastically deformable sheet to remain in the first portion even when the heater is extracted from the through-hole, thereby facilitating processing of disposing of the flavor generation article after use.

[0032] According to a fourteenth aspect, in the thirteenth aspect, the second stopper is a sealing sheet that covers an end surface and the through-hole of the elastically deformable sheet.

[0033] According to the fourteenth aspect, inserting the heater into the through-hole so as to tear the sealing sheet allows the flavor generation article to be heated by the heater while the sealing sheet is located on the end surface of the elastically deformable sheet. Therefore, when the heater is extracted from the through-hole after use, the elastically deformable sheet can be prevented from being pulled out of the first portion together with the heater with the aid of the sealing sheet located on the end surface of the elastically deformable sheet.

[0034] According to a fifteenth aspect, any of the first to fourteenth aspects further includes a wrapping sheet configured to surround an outer side of the elastically deformable sheet. The wrapping sheet has a grammage of 50 g/m² or heavier and 100 g/m² or lighter.

[0035] According to the fifteenth aspect, the wrapping sheet can maintain the appropriate shape in reaction to the deformation of the elastically deformable sheet. A grammage of the wrapping sheet lighter than 50 g/m² may make the wrapping sheet deformable more easily than the elastically deformable sheet, resulting in a failure to maintain the appropriate shape. A grammage of the

wrapping sheet heavier than 100 g/m² may impair the deformability of the elastically deformable sheet surrounded by the wrapping sheet.

[0036] According to a sixteenth aspect, a smoking system is provided. The smoking system includes the flavor generation article according to any of the first to fifteenth aspects, and a flavor inhaler including the heater. A diameter of the through-hole is smaller than a maximum length of the heater perpendicular to an insertion direction thereof.

[0037] According to the sixteenth aspect, the through-hole can be stretched by the heater due to the insertion of the heater into the through-hole. As a result, the elastically deformable sheet of the flavor generation article can be deformed. For example, in a case where the heater has a plate-like shape, the cross-sectional shape of the through-hole is deformed into a flattened shape by the heater, and the elastically deformable sheet can contact or approach the major surface of the plate-shaped heater according thereto. Alternatively, in a case where the heater has a pin-like shape, the elastically deformable sheet is compressed in the thickness direction and the elastically deformable sheet can contact or approach the circumferential surface of the heater when the heater is inserted in the through-hole. As a result, the flavor generation article can be efficiently heated.

[0038] According to a seventeenth aspect, a smoking system is provided. The smoking system includes the flavor generation article according to any of the first to fifteenth aspects, and a flavor inhaler including the heater. The flavor inhaler has an opening that receives the flavor generation article. A maximum diameter of the opening is larger than a maximum diameter of the flavor generation article. A minimum diameter of the opening is smaller than a minimum diameter of the flavor generation article.

[0039] According to the seventeenth aspect, the flavor generation article can be deformed in conformity with the shape of the opening according to the insertion of the flavor generation article into the opening of the flavor inhaler. More specifically, the flavor generation article can be deformed in conformity with the minimum diameter of the opening, and can be deformed into a flattened shape in cross-section. This allows the elastically deformable sheet of the flavor generation article to contact or approach the heater, thereby allowing the flavor generation article to be efficiently heated.

[0040] According to an eighteenth aspect, in the sixteenth or seventeenth aspect, an inner perimeter of the through-hole is longer than an outer perimeter of the heater.

[0041] According to the eighteenth aspect, a space can be generated between the heater and the flavor generation article (the inner surface of the flavor generation article defining the through-hole) even when the flavor generation article and the through-hole are deformed, which contributes to preventing an increase in the draw resistance and also facilitating a further reliable delivery

of the flavor or the aerosol generated in the flavor generation article 10 to the user via this space. The outer perimeter of the heater in this case can be the maximum outer perimeter in a portion of the heater inserted in the flavor generation article.

[0042] According to a nineteenth aspect, in any of the sixteenth to eighteenth aspects, the heater is a plate-shaped heater including a first surface and a second surface opposite from the first surface. The elastically deformable sheet is deformed in such a manner that a distance between the elastically deformable sheet and the first surface or the second surface reduces when the plate-shaped heater is inserted in the through-hole.

[0043] According to the nineteenth aspect, the elastically deformable sheet contacts or approaches the first surface or the second surface by being deformed, and therefore the flavor generation article can be efficiently heated.

[0044] According to a twelfth aspect, in any of the sixteenth to nineteenth aspects, the through-hole is defined by an inner surface of the elastically deformable sheet or the flavor generation sheet.

[0045] According to the twelfth aspect, the inner surface of the elastically deformable sheet or the flavor generation sheet can directly contact the heater when the heater is inserted in the through-hole, and therefore the elastically deformable sheet or the flavor generation article can be efficiently heated.

BRIEF DESCRIPTION OF DRAWINGS

[0046]

Fig. 1 is a schematic view of a flavor generation article according to an embodiment of the present invention.

Fig. 2 is a side view of the flavor generation article as viewed from arrows 2-2 illustrated in Fig. 1.

Fig. 3 is a cross-sectional view of a second portion as viewed from arrows 3-3 illustrated in Fig. 1.

Fig. 4A is a side view of the flavor generation article according to another embodiment.

Fig. 4B is a schematic view of the flavor generation article after a heater is inserted.

Fig. 5 is a cross-sectional view illustrating main portions of a flavor inhaler in the width direction of the heater.

Fig. 6 is a cross-sectional view illustrating the main portions of the flavor inhaler in the thickness direction of the heater.

Fig. 7 is a cross-sectional view illustrating how the flavor generation article is contained into the flavor inhaler.

Fig. 8 is a cross-sectional view illustrating how the flavor generation article is contained into the flavor inhaler.

Fig. 9 is a cross-sectional view illustrating how the flavor generation article is contained into the flavor

inhaler.

Fig. 10 is a side view of the flavor generation article according to another embodiment.

DESCRIPTION OF EMBODIMENTS

[0047] In the following description, embodiments of the present invention will be described with reference to the drawings. In the drawings that will be described below, identical or corresponding components will be indicated by the same reference numerals, and redundant descriptions will be omitted.

[0048] Fig. 1 is a schematic view of a flavor generation article according to an embodiment of the present invention. Fig. 2 is a side view of the flavor generation article as viewed from arrows 2-2 illustrated in Fig. 1. Fig. 1 illustrates a cross-sectional view and a side view of a first portion 30 and a second portion 20 of the flavor generation article 10, respectively. The flavor generation article 10 is a generally stick-shaped component, and is configured to generate a flavor by being heated and provide the flavor to a user who inhales the flavor generation article 10. As illustrated in Fig. 1, the flavor generation article 10 includes the first portion 30 and the second portion 20 adjacent to the first portion 30 in the longitudinal direction.

[0049] The first portion 30 is configured to generate the flavor by being heated. As illustrated in Figs. 1 and 2, the first portion 30 includes an elastically deformable sheet 32. Further, the second portion 20 is configured to allow the flavor generated in the first portion 30 to pass through it. Due to that, the flavor generated in the first portion 30 can be cooled in the second portion 20. The flavor generation article 10 includes a through-hole 36. A heater of a flavor inhaler, which will be described below, can be inserted in the through-hole 36, and the through-hole 36 can be at least partially defined by the tubular elastically deformable sheet 32. As illustrated in Fig. 2, the through-hole 36 and the first portion 30 are substantially circular in cross-section as viewed from the longitudinal direction. In the present embodiment, the elastically deformable sheet 32 is elastically deformable in the thickness direction thereof (i.e., the radial direction of the tubular elastically deformable sheet 32). This allows the elastically deformable sheet 32 to be elastically deformed relative to the heater in the thickness direction to thus facilitate its contact or approach to the heater when the heater is inserted in the through-hole 36. Due to that, in a case where the elastically deformable sheet 32 includes the flavor or a sheet including the flavor is present inside the elastically deformable sheet 32, the sheet including the flavor can be placed to contact or approach the heater further closely, and therefore the flavor generation article 10 can be efficiently heated.

[0050] In the example illustrated in Figs. 1 and 2, the elastically deformable sheet 32 may be a non-tobacco sheet. The non-tobacco sheet means a sheet made of a non-tobacco raw material, and may contain a tobacco

raw material. More specifically, the elastically deformable sheet 32 can be made of a non-tobacco fiber such as a pulp fiber or a non-woven fabric, and may include an aerosol source. The non-tobacco fiber used for the non-tobacco sheet can include a non-pulp fiber. The non-pulp fiber is a fiber other than a pulp fiber. The pulp fiber is a group of cellulose fibers extracted from a plant such as a wood material, and is typically used as a raw material for paper. Examples of the pulp fiber include waste paper pulp, chemical pulp, and mechanical pulp.

[0051] The non-tobacco sheet may include a binder. The binder is an adhesive for binding fibers or the like. A binder known in the field can be used as the binder. The non-tobacco sheet may include an emulsifier. The emulsifier enhances affinity between a lipophilic aerosol generation base material and a hydrophilic non-pulp fiber. A known emulsifier can be used as the emulsifier, and examples thereof include an emulsifier having an HLB value of 8 to 18.

[0052] The aerosol source is a material that generates aerosols by being gasified through heating and then cooled, or a material that generates aerosols through atomization. A known aerosol source can be used as the aerosol source, and examples thereof include polyhydric alcohol such as glycerin and propylene glycol (PG), triethyl citrate (TEC), and triacetin. This aerosol source can also be added to a tobacco sheet 34b, which will be described below.

[0053] The non-tobacco sheet may include a flavor generation base material. The flavor generation base material is a material that provides the flavor and the smoking taste, and is preferably a tobacco material. Specific examples of the tobacco material include chopped dried tobacco leaves, ground leaf tobacco, and a tobacco extract (an extract using water, an organic solvent, or a mixture thereof). The ground leaf tobacco means particles acquired by grinding leaf tobacco. An average particle diameter of the ground leaf tobacco can be, for example, 30 to 120 μm . The leaf tobacco can be ground using a known grinding machine, and may be ground by either dry grinding or wet grinding. Therefore, the ground leaf tobacco is also called leaf tobacco particles. In the present embodiment, the average particle diameter is measured by a laser diffraction/scattering method, and, more specifically, measured using a laser diffraction-type particle diameter distribution measurement apparatus (for example, LA-950 available from Horiba Ltd.). Further, the kind of tobacco is not limited, and usable examples thereof include flue-cured tobacco, Burley tobacco, orient tobacco, domestic tobacco, and other *Nicotiana tabacum* cultivars and *Nicotiana rustica* cultivars. Although the amount of the flavor generation base material in the non-tobacco sheet is not especially limited, the amount is preferably 1 to 30% by weight, and more preferably 10 to 20% by weight.

[0054] The flavor generation base material can contain a flavoring. The flavoring is a substance that provides the flavor and the taste. The flavoring may be either a natural

flavoring or a synthetic flavoring. Either one kind of flavoring or a mixture of a plurality of kinds of flavorings may be used as the flavoring. Any flavoring commonly used in a smoking product can be used as the flavoring, and specific examples thereof will be described below. The flavoring can be contained in the non-tobacco sheet by such an amount that the smoking product can provide a favorable flavor and taste, and the amount thereof is, for example, preferably 1 to 30% by weight, and more preferably 10 to 20% by weight in the non-tobacco sheet.

[0055] Any normally used flavoring, such as an essential oil, a natural flavoring, or a synthetic flavoring, can be used as the flavoring. Further, the flavoring may be either liquid or solid, and may be prepared in any format. The suitable flavor is a flavoring selected from tobacco extracts and tobacco components, sugar and sugar-based flavors, licorice (*Glycyrrhiza glabra*), cocoa, chocolate, fruit juices and fruits, spices, western liquors, herbs, vanilla, flower-based flavors, and the like, or a combination thereof. More specifically, the suitable flavor is a flavoring selected from isothiocyanates, indole and derivatives thereof, ethers, esters, ketones, fatty acids, aliphatic higher alcohols, aliphatic higher aldehydes, aliphatic higher hydrocarbons, thioethers, thiols, terpene-based hydrocarbons, phenol ethers, phenols, furfural and derivatives thereof, aromatic alcohols, aromatic aldehydes, lactones, and the like, or a combination thereof.

[0056] The flavoring can also be provided using a wide range of flavoring components such as the examples described in "Collection of Well-known Prior Arts (Flavorings)" (March 14, 2007, issued by Japan Patent Office), "Latest Flavoring Encyclopedia (popular edition)" (February 25, 2012, edited by Soichi Arai, Akio Kobayashi, Izumi Yajima, and Michiaki Kawasaki, and published by Asakura Publishing Co., Ltd.), and "Tobacco Flavoring for Smoking Products" (June 1972, published by R.J. REYNOLDS TOBACCO COMPANY).

[0057] Examples of the flavoring usable from the perspective of addition of a satisfactory smoking taste include acetanisole, acetophenone, acetylpyrazine, 2-acetylthiazole, an alfalfa extract, amyl alcohol, amyl butyrate, trans-anethole, anise star oil, apple juice, Peru balsam oil, beeswax absolute, benzaldehyde, benzoin resinoid, benzyl alcohol, benzyl benzoate, benzyl phenylacetate, benzyl propionate, 2,3-butanedione, 2-butanol, butyl butyrate, butyric acid, caramel color, cardamom oil, carob absolute, β -carotene, carrot juice, L-carvone, β -caryophyllene, cassia bark oil, cedarwood oil, celery seed oil, chamomile oil, cinnamaldehyde, cinnamic acid, cinnamyl alcohol, cinnamyl cinnamate, citronella oil, DL-citronellol, a clary sage extract, cocoa, coffee, cognac white oil, coriander oil, cuminaldehyde, davana oil, δ -decalactone, γ -decalactone, decanoic acid, dill/herb oil, 3,4-dimethyl-1,2-cyclopentanedione, 4,5-dimethyl-3-hydroxy-2,5-dihydrofuran-2-one, 3,7-dimethyl-6-octenoic acid, 2,3-dimethylpyrazine, 2,5-dimethylpyrazine, 2,6-dimethylpyrazine, ethyl 2-methylbutyrate, ethyl acetate, ethyl butyrate, ethyl hexanoate, ethyl isovalerate, ethyl

lactate, ethyl laurate, ethyl levulinate, ethyl maltol, ethyl octanoate, ethyl oleate, ethyl palmitate, ethyl phenylacetate, ethyl propionate, ethyl stearate, ethyl valerate, ethyl vanillin, ethyl vanillin glucoside, 2-ethyl-3-(5 or 6)-dimethylpyrazine, 5-ethyl-3-hydroxy-4-methyl-2(5H)-furanone, 2-ethyl-3-methylpyrazine, eucalyptol, fenugreek absolute, genet absolute, gentian root infusion, geraniol, geranyl acetate, grape juice, guaiacol, a guava extract, γ -heptalactone, γ -hexalactone, hexanoic acid, cis-3-hexen-1-ol, hexyl acetate, hexyl alcohol, hexyl phenylacetate, honey, 4-hydroxy-3-pentenoic acid lactone, 4-hydroxy-4-(3-hydroxy-1-butenyl)-3,5,5-trimethyl-2-cyclohexen-1-one, 4-(p-hydroxyphenyl)-2-butanone, 4-hydroxyundecanoic acid sodium salt, immortelle absolute, β -ionone, isoamyl acetate, isoamyl butyrate, isoamyl phenylacetate, isobutyl acetate, isobutyl phenylacetate, jasmine absolute, kola nut tincture, labdanum oil, lemon/terpeneless oil, a licorice extract, linalool, linalyl acetate, lovage root oil, maltol, maple syrup, menthol, menthone, L-menthyl acetate, p-methoxy benzaldehyde, methyl-2-pyrrolyl ketone, methyl anthranilate, methyl phenylacetate, methyl salicylate, 4'-methyl acetophenone, methyl cyclopentenolone, 3-methyl valeic acid, mimosa absolute, molasse, myristic acid, nerol, nerolidol, γ -nonalactone, nutmeg oil, δ -octalactone, octanal, octanoic acid, orange flower oil, orange oil, orris root oil, palmitic acid, ω -pentadecalactone, peppermint oil, petitgrain Paraguay oil, phenethyl alcohol, phenethyl phenylacetate, phenylacetic acid, piperonal, a plum extract, propenylguaetol, propyl acetate, 3-propylidenephthalide, prune juice, pyruvic acid, a raisin extract, rose oil, rum, sage oil, sandalwood oil, spearmint oil, styrax absolute, marigold oil, tea distillate, α -terpineol, terpinyl acetate, 5,6,7,8-tetrahydroquinoxaline, 1,5,5,9-tetramethyl-13-oxacyclo(8.3.0.0(4.9))tridecane, 2,3,5,6-tetramethylpyrazine, thyme oil, a tomato extract, 2-tridecanone, triethyl citrate, 4-(2,6,6-trimethylcyclohex-1-enyl)but-2-en-4-one, 2,6,6-trimethylcyclohex-2-ene-1,4-dione, 4-(2,6,6-trimethylcyclohexa-1,3-dienyl)but-2-en-4-one, 2,3,5-trimethylpyrazine, γ -undecalactone, γ -valerolactone, a vanilla extract, vanillin, veratraldehyde, violet leaf absolute, citral, mandarin oil, 4-methylbenzyl acetate, 2-methyl-1-butanol, ethyl 10-undecenoate, isoamyl hexanoate, 1-ethyl phenylacetate, lauric acid, 8-mercaptomenthone, sinensal, and hexyl butyrate. Then, especially preferably usable example is menthol. Further, among these flavorings, one kind may be used alone, or two or more kinds among them may be used together.

[0058] The kind of the solid flavoring is not especially limited, but the solid flavoring suitable from the perspective of addition of a satisfactory smoking taste is a flavoring selected from cocoa powder, carob powder, coriander powder, licorice powder, orange peel powder, herb powder, flower powder, spice powder, tea powder, and the like, or a combination thereof.

[0059] Further, the flavor generation base material may contain a refreshing agent or a seasoning. The kind of this refreshing agent is not especially limited, but

examples thereof usable from the perspective of addition of a satisfactory smoking taste include menthol, camphor, isopulegol, cineole, mint oil, peppermint oil, eucalyptus oil, 2-1-methoxyethanol (COOLACT (registered trademark) 5), 3-1-methoxypropane-1,2-diol (COOLACT (registered trademark) 10), 1-menthyl-3-hydroxybutyrate (COOLACT (registered trademark) 20), p-menthane-3,8-diol (COOLACT (registered trademark) 38D), N-(2-hydroxy-2-phenylethyl)-2-isopropyl-5,5-dimethylcyclohexane-1-carboxamide (COOLACT (registered trademark) 370), N-(4-(cyanomethyl)phenyl)-2-isopropyl-5,5-dimethylcyclohexane carboxamide (COOLACT (registered trademark) 400), N-(3-hydroxy-4-methoxyphenyl)-2-isopropyl-5,5-dimethylcyclohexane carboxamide, N-ethyl-p-menthane-3-carbamide (WS-3), ethyl-2-(p-menthane-3-carboxamide)acetate (WS-5), N-(4-methoxyphenyl)-p-menthane carboxamide (WS-12), 2-isopropyl-N,2,3-trimethylbutylamide (WS-23), 3-1-methoxy-2-methylpropane-1,2-diol, 2-1-methoxyethane-1-ol, 3-1-methoxypropane-1-ol, 4-1-methoxybutane-1-ol, menthyl lactate (FEMA3748), menthone glycerin acetal (FrescolatMGA, FEMA3807, FEMA3808), 2-(2-1-menthyloxyethyl)ethanol, menthyl glyoxylate, 2-pyrrolidone-5-menthyl carboxylate, menthyl succinate (FEMA3810), N-(2-(pyridin-2-yl)-ethyl)-3-p-menthane carboxamide (FEMA4549), N-(ethoxycarbonylmethyl)-p-menthane-3-carboxamide, N-(4-cyanomethylphenyl)-p-menthane carboxamide, and N-(4-aminocarbonylphenyl)-p-menthane. The refreshing agent may be used alone, or two or more kinds thereof may be used together.

[0060] The kind of this seasoning is not especially limited, but examples thereof usable from the perspective of addition of a satisfactory smoking taste include sweeteners (sugar (glucose, fructose, isomerized sugar, caramel, and the like)), acidulants (organic acids and the like), and other taste components (materials for providing an umami taste, a bitter taste, or a salty taste, and the like). Besides them, fat (waxes, wax ester, and fatty acids (short-chain, middle-chain, and long-chain fatty acids, and the like)) can be optionally added.

[0061] In a case where the flavoring, the refreshing agent, and the seasoning are contained in shredded tobacco, the total content thereof is typically 10000 ppm or greater, preferably 20000 ppm or greater, and more preferably 25000 ppm or greater, and is also typically 70000 ppm or less, preferably 50000 ppm or less, more preferably 40000 ppm or less, and still more preferably 33000 ppm or less from the perspective of addition of a satisfactory smoking taste, although the total content of them is not especially limited in one embodiment. Alternatively, the above-described total amount is preferably 2% by weight or greater, and more preferably 5% by weight or greater, and is preferably 20% by weight or less, and more preferably 10% by weight or less in another embodiment.

[0062] Preferably, the elastically deformable sheet 32 has a volume void ratio of 85% or higher and 95% or

lower. This allows the sheet including the flavor (the elastically deformable sheet 32 or the tobacco sheet 34b that will be described below) to further appropriately contact or approach the heater. A volume void ratio of the elastically deformable sheet 32 lower than 85% causes the elastically deformable sheet to have an excessively strong repulsive force, thereby making it difficult to deform the flavor generation article. Further, in this case, the airflow resistance of the flavor generation article may excessively increase. A volume void ratio of the elastically deformable sheet 32 higher than 95% causes the elastically deformable sheet to have a weak repulsive force, and therefore may result in a reduction in the contact between the inner wall of the flavor generation article and the heater and affect the delivery when the flavor generation article is deformed.

[0063] Further, preferably, the elastically deformable sheet 32 has airflow resistance of 0 mmH₂O or higher and 150 mmH₂O or lower. Due to that, appropriate airflow resistance can be achieved when the user inhales even without a space generated between the heater and the elastically deformable sheet 32. Airflow resistance of the elastically deformable sheet 32 higher than 150 mmH₂O may lead to excessively high draw resistance, thereby making the user feel uncomfortable when inhaling. The airflow resistance of the elastically deformable sheet 32 here means airflow resistance in the length direction of the elastically deformable sheet 32, i.e., in the horizontal direction in Fig. 1 (a direction in which air flow).

[0064] Preferably, the elastically deformable sheet 32 has predetermined hardness in the thickness direction. Controlling the hardness makes the flavor generation article 10 easily deformable and places the flavor generation article 10 and the heater into close contact with each other, thereby contributing to the improvement of the heating efficiency.

[0065] Preferably, the elastically deformable sheet 32 is a non-tobacco sheet having a grammage of 30 g/m² or heavier and 100 g/m² or lighter. This allows the sheet including the flavor to further appropriately contact the heater. A grammage of the elastically deformable sheet 32 lighter than 30 g/m² may lead to, for example, undesirable quick exhaustion of the flavor, or an excessive reduction in the thickness of the elastically deformable sheet to make the elastically deformable sheet, for example, easily breakable in the course of the manufacturing, thereby impairing manufacturing suitability or causing the elastically deformable sheet to be torn when the heater is inserted. A grammage of the elastically deformable sheet 32 heavier than 100 g/m² makes the elastically deformable sheet less bendable, thereby making the flavor generation article 10 less deformable. Further, in this case, the heat capacity increases, which may cause the temperature of the flavor generation article 10 to rise slowly and increase the time taken to get ready for the first puff.

[0066] In the above-described manner, preferably, the elastically deformable sheet 32 is a non-tobacco sheet

carrying the aerosol source or the flavor generation base material. As a result, the aerosol or the flavor can be generated by efficiently heating the elastically deformable sheet 32 due to the contact or approach of the elastically deformable sheet 32 to the heater.

[0067] As illustrated in Figs. 1 and 2, the flavor generation article 10 preferably includes the flavor generation sheet 34. In the illustrated example, the flavor generation sheet 34 is located inside the elastically deformable sheet 32 and is tubularly formed, and defines at least a part of the through-hole 36 together with the elastically deformable sheet 32. This allows the flavor generation sheet 34 located inside the elastically deformable sheet 32 to contact or approach the heater according to the deformation of the elastically deformable sheet 32 and the contact or approach thereof to the heater. As a result, the flavor generation sheet 34 can be efficiently heated to generate the aerosol or the flavor. Without being limited thereto, the through-hole 36 can be defined by the inner surface of the elastically deformable sheet 32 or the flavor generation sheet 34 in the present embodiment. Due to that, the inner surface of the elastically deformable sheet 32 or the flavor generation sheet 34 can directly contact the heater 120 when the heater 120 is inserted in the through-hole 36, and therefore the elastically deformable sheet 32 or the flavor generation sheet 34 can be efficiently heated.

[0068] As illustrated in Fig. 2, the flavor generation sheet 34 can include a non-tobacco sheet 34a carrying an aerosol source or a flavor generation base material. Due to that, the aerosol source or the flavor generation base material in the non-tobacco sheet 34a can be efficiently heated to generate the aerosol, the flavor, or the like. The aerosol source or the flavor generation base material carried by the non-tobacco sheet 34a can be the above-described aerosol source or flavor generation base material that the elastically deformable sheet 32 can carry.

[0069] Further, as illustrated in Fig. 2, the flavor generation sheet 34 can include the tobacco sheet 34b. Due to that, the tobacco sheet 34b can be efficiently heated to generate the aerosol or the flavor. The tobacco sheet 34b is located inside the non-tobacco sheet 34a in the example illustrated in Fig. 2, but the tobacco sheet 34b may be located outside the non-tobacco sheet 34a.

[0070] The tobacco sheet 34b can contain, for example, tobacco (corresponding to one example of the flavor generation base material) and polyhydric alcohol (corresponding to one example of the aerosol source). Examples of the polyhydric alcohol can include glycerin, propylene glycol, sorbitol, xylitol, and erythritol. Among these polyhydric alcohols, one kind may be used alone, or two or more kinds may be used in combination, for the tobacco sheet 34b. These polyhydric alcohols can also be added to the above-described elastically deformable sheet 32. The tobacco sheet 34b can be formed into a sheet shape by mixing a binder into powder tobacco and the polyhydric alcohol. Usable examples of the binder

include guar gum, xanthan gum, CMC (carboxy methyl cellulose), CMC-Na (sodium salt of carboxy methyl cellulose), pullulan and hydroxypropyl cellulose (HPC), methyl cellulose, and hydroxyl methyl cellulose. This binder can also be added to the above-described elastically deformable sheet 32.

[0071] Further, pulp may be added to the tobacco sheet 34b. The pulp can improve the strength of the tobacco sheet 34b. On the other hand, pulp does not have to be added to the tobacco sheet 34b. No use of pulp means an increase in the proportion of tobacco in the tobacco sheet 34b by an amount corresponding thereto, thereby being expected to improve the smoking taste.

[0072] The percentage by weight of the binder that can be added to the tobacco sheet 34b is, for example, preferably 0% or heavier and 60% or lighter, and more preferably 0% or heavier and 10% or lighter in relation to the weight of the tobacco sheet 34b. The tobacco sheet 34b can have blending ratios (percentages by weight) of, for example, 5% to 40% for the polyhydric alcohol, 50% to 90% for the tobacco, 0% to 10% for the binder, and 0% to 10% for the pulp. Further, acid such as lactic acid, palmitic acid, or benzoic acid may be added to the tobacco sheet 34b.

[0073] As illustrated in Fig. 2, the flavor generation sheet 34 can include the tobacco sheet 34b and the non-tobacco sheet 34a. Without being limited thereto, the flavor generation sheet 34 can include only any one of the tobacco sheet 34b and the non-tobacco sheet 34a.

[0074] Fig. 3 is a cross-sectional view of the second portion 20 as viewed from arrows 3-3 illustrated in Fig. 1. As illustrated in Fig. 3, the second portion 20 includes a tubular wrapping sheet 21 and a first stopper 22 located inside the wrapping sheet 21. In the present embodiment, the grammage of the wrapping sheet 21 is preferably 50 g/m² or heavier and 150 g/m² or lighter, and more preferably 50 g/m² or heavier and 100 g/m² or lighter. Preferably, the wrapping sheet 21 surrounds the outer side of the elastically deformable sheet 32 as illustrated in Fig. 2. More specifically, the wrapping sheet 21 preferably extends from the second portion 20 to the first portion 30. Due to that, the wrapping sheet 21 can maintain the appropriate shape in reaction to the deformation of the elastically deformable sheet 32. A grammage of the wrapping sheet 21 lighter than 50 g/m² may make the wrapping sheet 21 deformable more easily than the elastically deformable sheet 32, resulting in a failure to maintain the appropriate shape. A grammage of the wrapping sheet 21 heavier than 100 g/m² may impair the deformability of the elastically deformable sheet 32 surrounded by the wrapping sheet 21.

[0075] The first stopper 22 can prevent the elastically deformable sheet 32 from moving from the first portion 30 toward the second portion 20. More specifically, in the present embodiment, at least a part of the first stopper 22 of the second portion 20 is located on the same radius as the elastically deformable sheet 32 as viewed from the longitudinal direction. In other words, at least a part of the

first stopper 22 is located in contact with the elastically deformable sheet 32 in the longitudinal direction. Due to that, the first stopper 22 can prevent the elastically deformable sheet 32 from moving by contacting the elastically deformable sheet 32 even under a force applied from the heater to the elastically deformable sheet 32 in a direction toward the second portion 20 when the heater is inserted into the through-hole 36. As a result, the flavor generation article 10 can be prevented from being broken when the heater is inserted. In the present embodiment, the first stopper 22 can be such paper that both ends thereof are connected to different positions of the inner surface of the tubular wrapping sheet 21 and the length between these ends is longer than the diameter of the wrapping sheet 21. Without being limited thereto, the first stopper 22 can be configured in any manner capable of preventing the elastically deformable sheet 32 from moving from the first portion 30 toward the second portion 20.

[0076] Fig. 4A is a side view of the flavor generation article 10 according to another embodiment. Fig. 4A illustrates a side view as viewed from arrows 2-2 illustrated in Fig. 1. Preferably, the flavor generation article 10 includes a second stopper 38 that prevents the elastically deformable sheet 32 from moving from the first portion 30 toward the opposite side from the second portion 20. The second stopper 38 is at least partially located on the same radius as the elastically deformable sheet 32 as viewed from the longitudinal direction at a position of the first portion 30 opposite from the second portion 20. In other words, the second stopper 38 is at least partially located in contact with the elastically deformable sheet 32 in the longitudinal direction at a position of the first portion 30 opposite from the second portion 20. Due to that, the elastically deformable sheet 32 can be prevented from moving toward the opposite side from the second portion 20, i.e., the elastically deformable sheet 32 can be prevented from being pulled out of the first portion 30 together with the heater when the heater is extracted from the through-hole 36. This allows the elastically deformable sheet 32 to remain in the first portion 30 even when the heater is extracted from the through-hole 36, thereby facilitating processing of disposing of the flavor generation article 10 after use.

[0077] In the example illustrated in Fig. 4A, the second stopper 38 is a sealing sheet that covers the end surface and the through-hole 36 of the elastically deformable sheet 32. More specifically, the second stopper 38 extends in the radial direction of the first portion 30 of the flavor generation article 10, and a perforation 38a can be formed at an approximately central portion thereof. Fig. 4B is a schematic view of the flavor generation article 10 after the heater is inserted. The first portion 30 is illustrated in a cross-sectional view in Fig. 4B. As illustrated in Fig. 4B, when the heater is inserted in the through-hole 36, the second stopper 38 can be cut by the heater, for example, along the perforation 38a. Inserting the heater into the through-hole 36 so as to tear the second stopper 38 allows the flavor generation article 10 to be heated by

the heater while the second stopper 38 is located on the end surface of the elastically deformable sheet 32. Therefore, when the heater is extracted from the through-hole 36 after use, the elastically deformable sheet 32 can be prevented from being pulled out of the first portion 30 together with the heater with the aid of the second stopper 38 located on the end surface of the elastically deformable sheet 32. The second stopper 38 can be configured in any manner capable of preventing the elastically deformable sheet 32 from moving from the first portion 30 toward the opposite side from the second portion 20, such as being configured as a center hole filter.

[0078] Next, the flavor inhaler for heating the flavor generation article 10 will be described. Fig. 5 is a cross-sectional view illustrating main portions of a flavor inhaler 100 in the width direction of a heater 120. Fig. 6 is a cross-sectional view illustrating the main portions of the flavor inhaler 100 in the thickness direction of the heater 120. The flavor inhaler 100 can form a smoking system together with the flavor generation article 10. As illustrated in Figs. 5 and 6, the flavor inhaler 100 includes a housing 110 and the heater 120. The housing 110 has an opening 112 at one end thereof, and contains at least a part of the flavor generation article 10 inserted in the opening 112 via the opening 112. The housing 110 is made from, for example, resin, and, especially, can be made from PC (polycarbonate), ABS (Acrylonitrile-Butadiene-Styrene) resin, PEEK (polyetheretherketone), a polymer alloy containing a plurality of kinds of polymers, or the like, or metal such as aluminum. Then, the housing 110 is configured in such a manner that the cross-sectional area thereof in cross-section perpendicular to the longitudinal direction of the housing 110 is minimized near the opening 112.

[0079] Further, the housing 110 includes a shaping guide 114 and a pressing rib 116. The shaping guide 114 is provided at the opening 112, and deforms the cross-sectional shape of the flavor generation article 10 inserted in the housing 110. The pressing rib 116 is provided on the inner peripheral surface of the housing 110, and biases the flavor generation article 10 inserted in the housing 110 toward the heater 120 to deform the shape of the flavor generation article 10. The detailed configurations of the shaping guide 114 and the pressing rib 116, and the functions thereof for deforming the flavor generation article 10 will be described below.

[0080] In the illustrated example, the heater 120 is a flat plate-shaped PTC (Positive Temperature Coefficient) heater inserted in the flavor generation article 10 contained in the housing 110 and configured to heat the flavor generation article 10 from inside. Further, the heater 120 deforms the shape of the flavor generation article 10 inserted in the housing 110 in conformity with the shape of the heater 120. The function of the heater 120 for deforming the flavor generation article 10 will be described below. Now, the shaping guide 114, the pressing rib 116, and the heater 120 are configured to deform the

shape that the flavor generation article 10 has after being contained in the housing 110 from the shape that the flavor generation article 10 has before being contained in the housing 110. The heater 120 may be formed in any manner as long as it has a plate-like shape, and may be, for example, a heater inductively heated by an induction coil that is used as a susceptor without being limited to the resistively heating-type heater 120 like the present embodiment.

[0081] Subsequently, the relationship among the flavor generation article 10, the housing 110, and the heater 120 when the flavor generation article 10 is contained into the flavor inhaler 100, i.e., the flavor generation article 10 is inserted from one end side toward the other end side of the housing 110 will be described. Figs. 7 to 9 are cross-sectional views illustrating how the flavor generation article 10 is contained into the flavor inhaler 100. In Figs. 7 to 9, the elastically deformable sheet 32 and the flavor generation sheet 34 of the flavor generation article 10 are illustrated as one annular sheet 33.

[0082] Fig. 7 illustrates how the flavor generation article 10 passes through the shaping guide 114 in cross-section taken along the width direction of the heater 120 and in cross-section perpendicular to the longitudinal direction of the housing 110 at an inlet portion 118 of the shaping guide 114. Fig. 8 illustrates how the flavor generation article 10 passes through the pressing rib 116 in cross-section taken along the width direction of the heater 120 and in cross-section perpendicular to the longitudinal direction of the housing 110 at an intermediate portion of the pressing rib 116 and the end portion thereof on the other end side. Fig. 9 illustrates how the flavor generation article 10 is contained at a predetermined containing position in the housing 110 in cross-section taken along the width direction of the heater 120 and in cross-section perpendicular to the longitudinal direction of the housing 110 near the end portion of the heater 120 on the other end side.

[0083] As illustrated in Fig. 7, the shaping guide 114 includes a tapered portion 117 and the inlet portion 118. The tapered portion 117 is configured in such a manner that the tube flares toward the one end side of the housing 110, and guides the insertion of the flavor generation article 10 into the flavor inhaler 100. Preferably, the maximum diameter of the opening 112 of the flavor inhaler 100 is larger than the maximum diameter of the flavor generation article 10, and the minimum diameter of the opening 112 is smaller than the minimum diameter of the flavor generation article 10. In this case, the flavor generation article 10 can be deformed in conformity with the shape of the opening 112 according to the insertion of the flavor generation article 10 into the opening 112 of the flavor inhaler 100. More specifically, the flavor generation article 10 can be deformed in conformity with the minimum diameter of the opening 112, and can be deformed into a flattened shape in cross-section. This allows the elastically deformable sheet 32 of the flavor generation article 10 to contact or approach the heater 120, thereby

allowing the flavor generation article 10 to be efficiently heated. The opening 112 here can be a portion having a minimum cross-sectional area in the opening 112 of the flavor inhaler 100 into which the flavor generation article 10 is inserted. More specifically, the opening 112 here can be the inlet portion 118 in the example illustrated in Fig. 7. The inlet portion 118 may be configured to be elliptically shaped in cross-section and have a major axis longer than the diameter that the flavor generation article 10 has after being contained in the housing 110 and a minor axis approximately equal to the diameter that the flavor generation article 10 has before being contained in the housing 110. Further, the inlet portion 118 may be configured to have an inner perimeter shorter than the outer perimeter of the flavor generation article 10.

[0084] As illustrated in Fig. 8, the heater 120 is configured to have a sharp-pointed shape and increase in width toward the other end side. Due to that, the shape of the flavor generation article 10 is deformed according to the shape of the heater 120 as the flavor generation article 10 is being inserted while passing through the shaping guide 114. More specifically, the heater 120 is a plate-shaped heater including a first surface 120a and a second surface 120b opposite from the first surface 120a, and the elastically deformable sheet 32 is deformed in such a manner that the distance between the elastically deformable sheet 32 and the first surface 120a or the second surface 120b reduces when the heater 120 is inserted in the through-hole 36 as illustrated in Fig. 8. This allows the elastically deformable sheet 32 to be deformed to contact or approach the first surface 120a or the second surface 120b of the heater 120, thereby allowing the flavor generation article 10 to be efficiently heated.

[0085] Preferably, the diameter of the through-hole 36 of the flavor generation article 10 is smaller than the maximum length of the heater 120 perpendicular to the insertion direction thereof. In this case, the through-hole 36 can be stretched by the heater 120 due to the insertion of the heater 120 into the through-hole 36 as illustrated in Fig. 8. As a result, the elastically deformable sheet 32 of the flavor generation article 10 can be deformed. In the case where the heater 120 has a plate-like shape like the illustrated example, the cross-sectional shape of the through-hole 36 is deformed into a flattened shape by the heater 120, and the elastically deformable sheet 32 can contact or approach the major surface of the plate-shaped heater 120 according thereto. Alternatively, in the case where the heater 120 has a pin-like shape, the elastically deformable sheet 32 is compressed in the thickness direction and the elastically deformable sheet 32 can contact or approach the circumferential surface of the heater 120 when the heater 120 is inserted in the through-hole 36. As a result, the flavor generation article 10 can be efficiently heated. Further, the flavor generation article 10 can be prevented from being detached by being stretched by the heater 120.

[0086] The pressing rib 116 is provided on the inner peripheral surface of the housing 110 along the thickness

direction of the heater 120, and is formed by a pair of tapered surfaces located opposite from each other (refer to Fig. 6). Further, the pressing rib 116 is disposed so as to overlap a region where the width of the heater 120 gradually increases in the longitudinal direction of the housing 110. Then, the pressing rib 116 is configured to protrude by a distance gradually increasing toward the other end side of the housing 110, and protrude by the longest distance at a position where the width of the heater 120 is maximized. In this case, the pressing rib 116 is configured in such a manner that the length between the tapered surfaces is shorter than the diameter of the flavor generation article 10. Due to that, when the flavor generation article 10 passes through the pressing rib 116, the flavor generation article 10 stretched in the width direction of the heater 120 is biased by the pressing rib 116 in the thickness direction of the heater 120, thereby being deformed into a flattened shape. Further, the flavor generation article 10 can be prevented from being detached by being biased by the pressing rib 116.

[0087] Preferably, the inner perimeter of the through-hole 36 of the flavor generation article 10 is longer than the outer perimeter of the heater 120. This allows a space to be generated between the heater 120 and the flavor generation article 10 (the inner surface of the flavor generation article 10 defining the through-hole 36) even when the flavor generation article 10 and the through-hole 36 are deformed as illustrated in Fig. 9, thereby contributing to preventing an increase in the draw resistance and also facilitating a further reliable delivery of the flavor or the aerosol generated in the flavor generation article 10 to the user via this space.

[0088] Fig. 10 is a side view of the flavor generation article 10 according to another embodiment. Fig. 10 illustrates a side view of the flavor generation article as viewed from the arrows 2-2 illustrated in Fig. 1. The flavor generation article 10 illustrated in Fig. 10 is different from the flavor generation article 10 illustrated in Figs. 1 and 2 in terms of the structure of the elastically deformable sheet 32. More specifically, the elastically deformable sheet 32 of the flavor generation article 10 illustrated in Fig. 10 is a non-tobacco sheet having a corrugated cross-section as viewed from the longitudinal direction. In the illustrated example, the elastically deformable sheet 32 can be elastically deformed in the thickness direction thereof due to deformation of the corrugated cross-section of the non-tobacco sheet. Further, because having a space (between waves) along the longitudinal direction thereof, the non-tobacco sheet corrugated in cross-section can define a flow passage in which the flavor or the like generated in the flavor generation article 10 passes through. In the example illustrated in Fig. 10, the flavor generation sheet 34 includes only the tobacco sheet 34b.

[0089] Having described the embodiments of the present invention, the present invention shall not be limited to the above-described embodiments, and can be modified in various manners within the scope of the technical idea disclosed in the claims, specification, and drawings.

Note that any shape and material not directly described or illustrated in the specification or drawings are still within the scope of the technical idea of the present invention insofar as they allow the present invention to achieve the actions and effects thereof.

REFERENCE SIGNS LIST

[0090]

10	flavor generation article
20	second portion
21	wrapping sheet
22	first stopper
30	first portion
32	elastically deformable sheet
34	flavor generation sheet
34a	non-tobacco sheet
34b	tobacco sheet
36	through-hole
38	second stopper
100	flavor inhaler
112	opening
120	heater
120a	first surface
120b	second surface

Claims

1. A flavor generation article configured to generate a flavor by being heated, the flavor generation article comprising:
 - a through-hole in which a heater can be inserted; and
 - a tubular elastically deformable sheet defining the through-hole, wherein the elastically deformable sheet is elastically deformable in a thickness direction thereof.
2. The flavor generation article according to claim 1, wherein the elastically deformable sheet has a volume void ratio of 85% or higher and 95% or lower.
3. The flavor generation article according to claim 1 or 2, wherein the elastically deformable sheet has air-flow resistance of 0 mmH₂O or higher and 150 mmH₂O or lower.
4. The flavor generation article according to any one of claims 1 to 3, wherein the elastically deformable sheet is a non-tobacco sheet having a grammage of 30 g/m² or heavier and 100 g/m² or lighter.
5. The flavor generation article according to any one of claims 1 to 4, wherein the elastically deformable sheet is a non-tobacco sheet carrying an aerosol

source or a flavor generation base material.

6. The flavor generation article according to any one of claims 1 to 5, wherein the elastically deformable sheet is a non-tobacco sheet having a corrugated cross-section as viewed from a longitudinal direction. 5
7. The flavor generation article according to any one of claims 1 to 6, further comprising a flavor generation sheet located inside the elastically deformable sheet. 10
8. The flavor generation article according to claim 7, wherein the flavor generation sheet includes a non-tobacco sheet carrying an aerosol source or a flavor generation base material. 15
9. The flavor generation article according to claim 7, wherein the flavor generation sheet includes a tobacco sheet. 20
10. The flavor generation article according to claim 7, wherein the flavor generation sheet includes a tobacco sheet, and a non-tobacco sheet carrying an aerosol source or a flavor generation base material. 25
11. The flavor generation article according to any one of claims 1 to 10, further comprising:
a first portion configured to generate the flavor by being heated, the first portion including the elastically deformable sheet; and
a second portion located adjacent to the first portion in the longitudinal direction and configured in such a manner that the flavor generated in the first portion passes therethrough. 30
12. The flavor generation article according to claim 11, wherein the second portion includes a first stopper configured to prevent the elastically deformable sheet from moving from the first portion toward the second portion. 40
13. The flavor generation article according to claim 11 or 12, wherein the elastically deformable sheet includes a second stopper configured to prevent the elastically deformable sheet from moving from the first portion toward an opposite side from the second portion. 45
14. The flavor generation article according to claim 13, wherein the second stopper is a sealing sheet that covers an end surface and the through-hole of the elastically deformable sheet. 50
15. The flavor generation article according to any one of claims 1 to 14, further comprising a wrapping sheet 55

configured to surround an outer side of the elastically deformable sheet,
wherein the wrapping sheet has a grammage of 50 g/m² or heavier and 100 g/m² or lighter.

16. A smoking system comprising:

the flavor generation article according to any one of claims 1 to 15; and
a flavor inhaler including the heater,
wherein a diameter of the through-hole is smaller than a maximum length of the heater perpendicular to an insertion direction thereof.

17. A smoking system comprising:

the flavor generation article according to any one of claims 1 to 15; and
a flavor inhaler including the heater,
wherein the flavor inhaler has an opening that receives the flavor generation article,
wherein a maximum diameter of the opening is larger than a maximum diameter of the flavor generation article, and
wherein a minimum diameter of the opening is smaller than a minimum diameter of the flavor generation article.

18. The smoking system according to claim 16 or 17, wherein an inner perimeter of the through-hole is longer than an outer perimeter of the heater.

19. The smoking system according to any one of claims 16 to 18, wherein the heater is a plate-shaped heater including a first surface and a second surface opposite from the first surface, and wherein the elastically deformable sheet is deformed in such a manner that a distance between the elastically deformable sheet and the first surface or the second surface reduces when the plate-shaped heater is inserted in the through-hole.

20. The smoking system according to any one of claims 16 to 19, wherein the through-hole is defined by an inner surface of the elastically deformable sheet or the flavor generation sheet.

Fig. 1

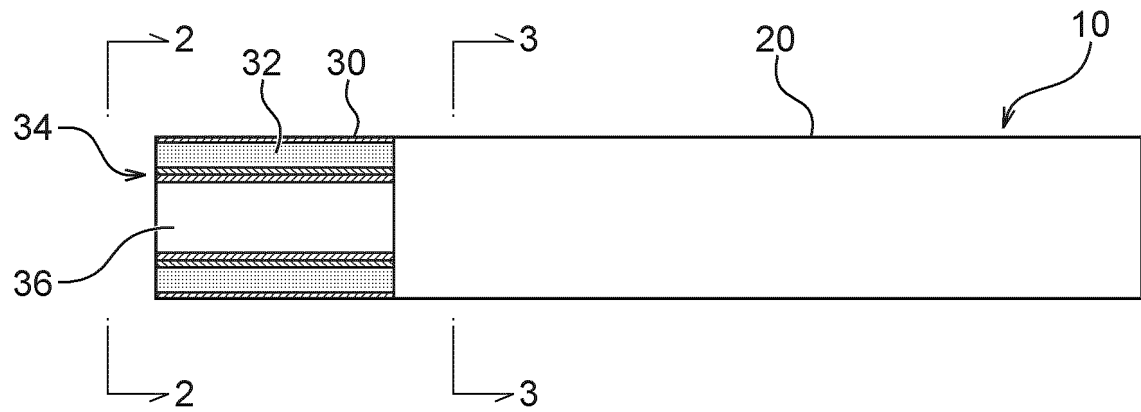


Fig. 2

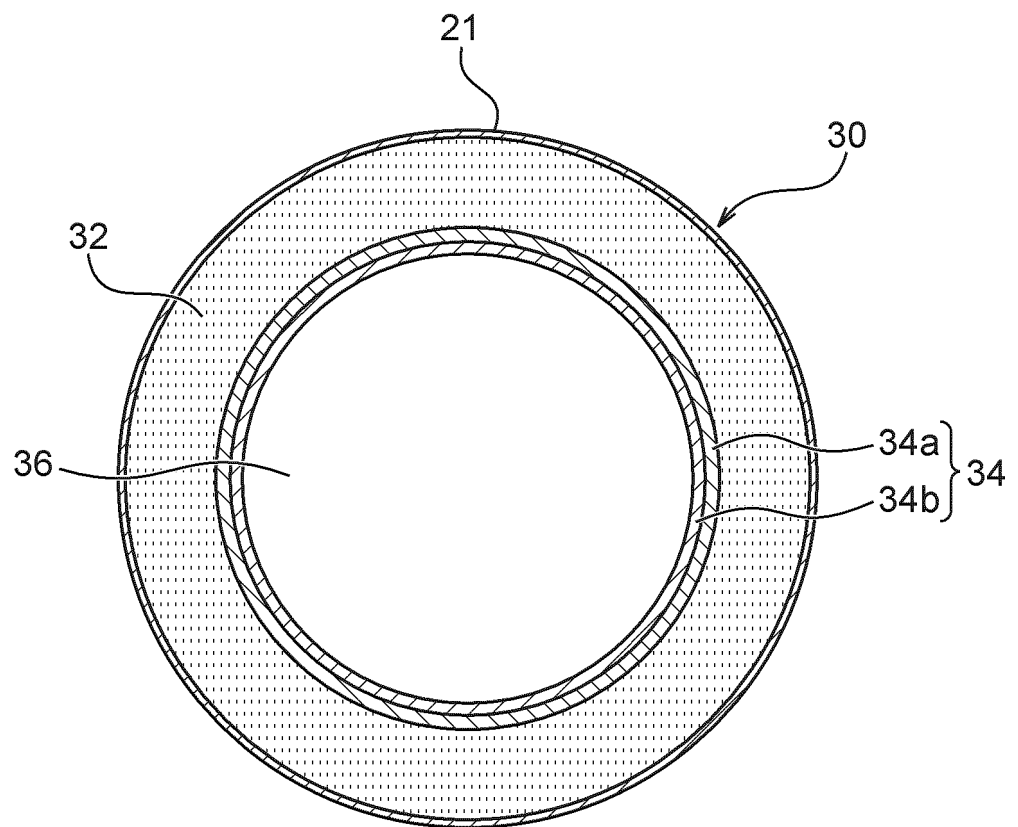


Fig. 3

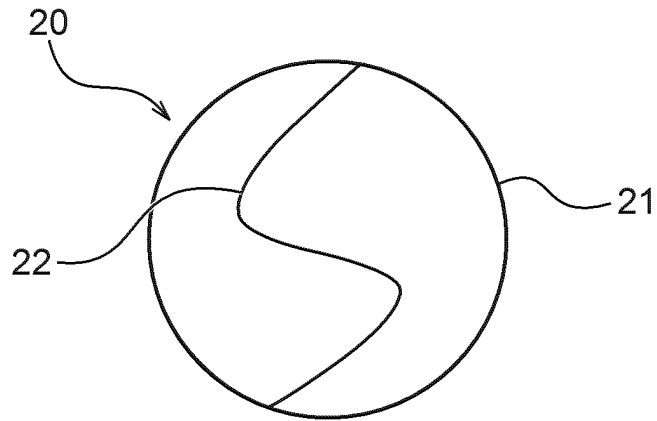


Fig. 4A

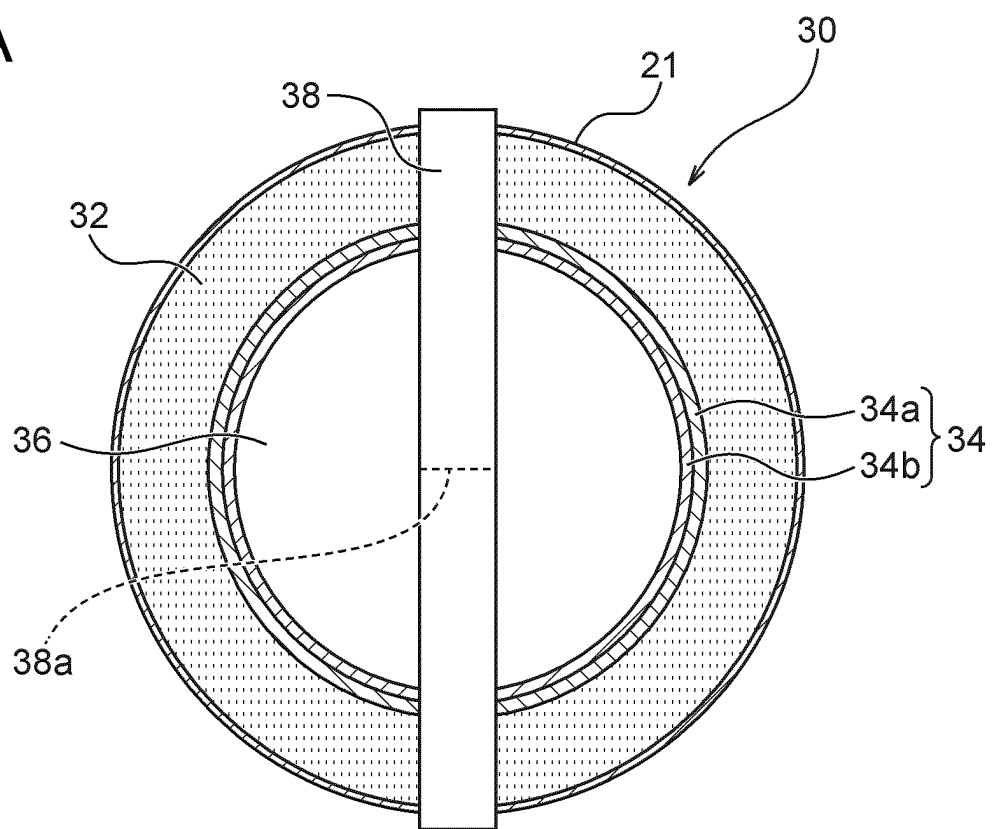


Fig. 4B

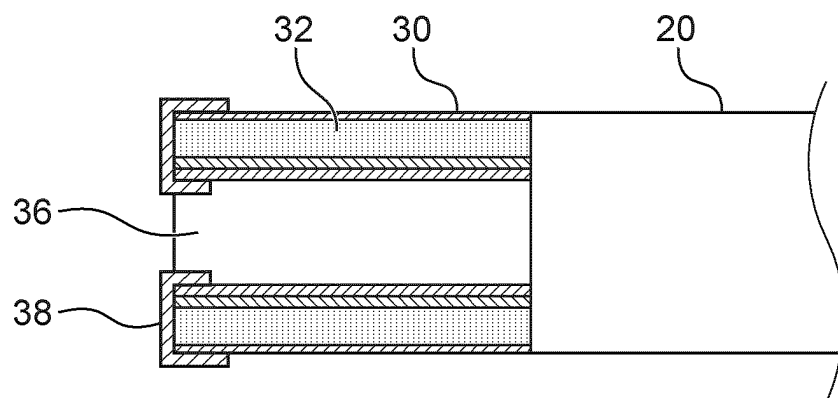


Fig. 5

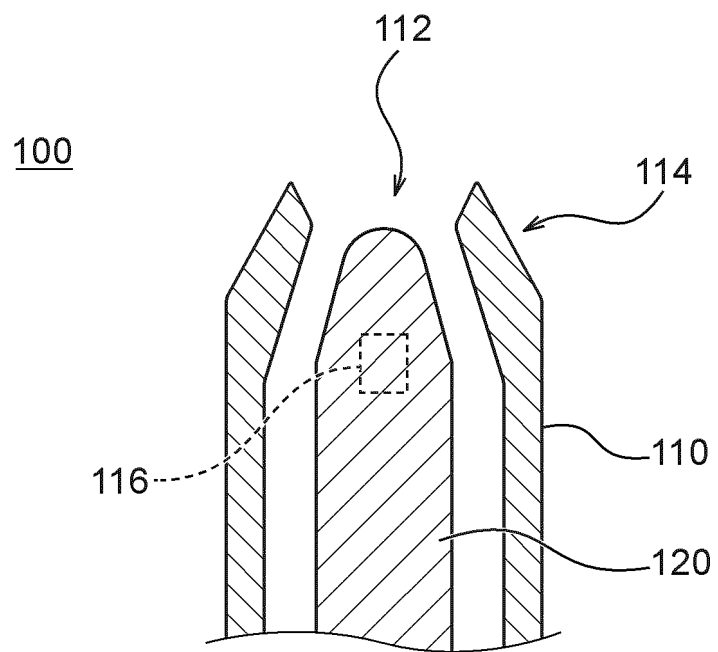


Fig. 6

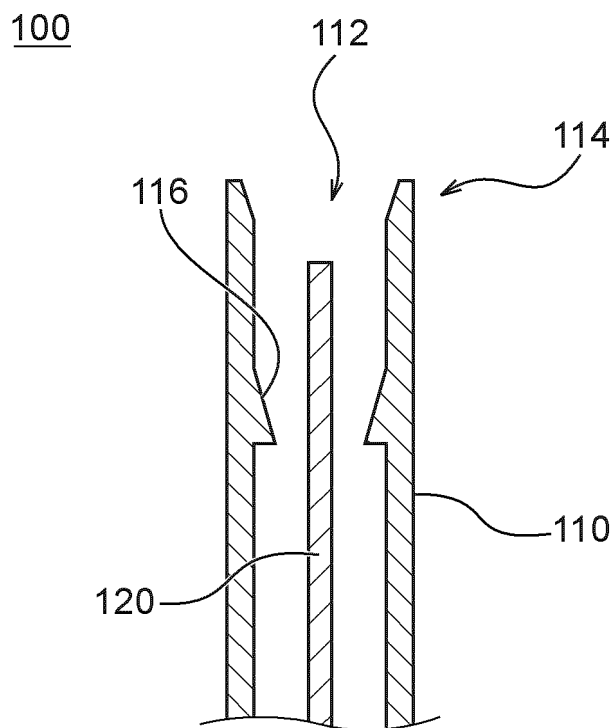


Fig. 7

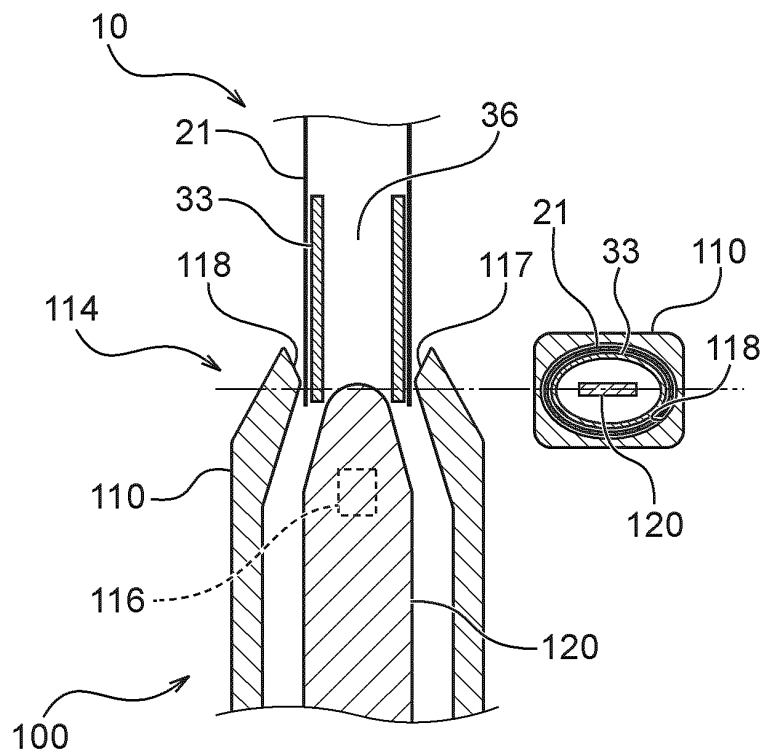


Fig. 8

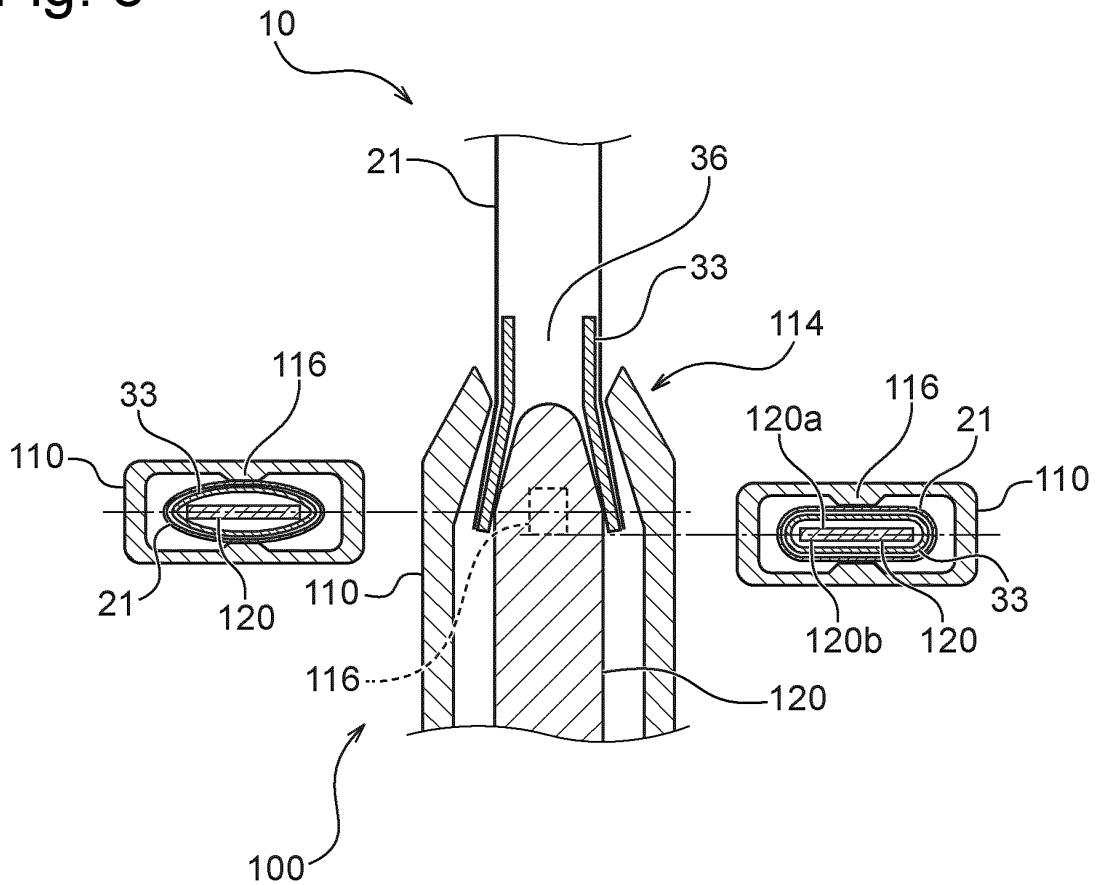


Fig. 9

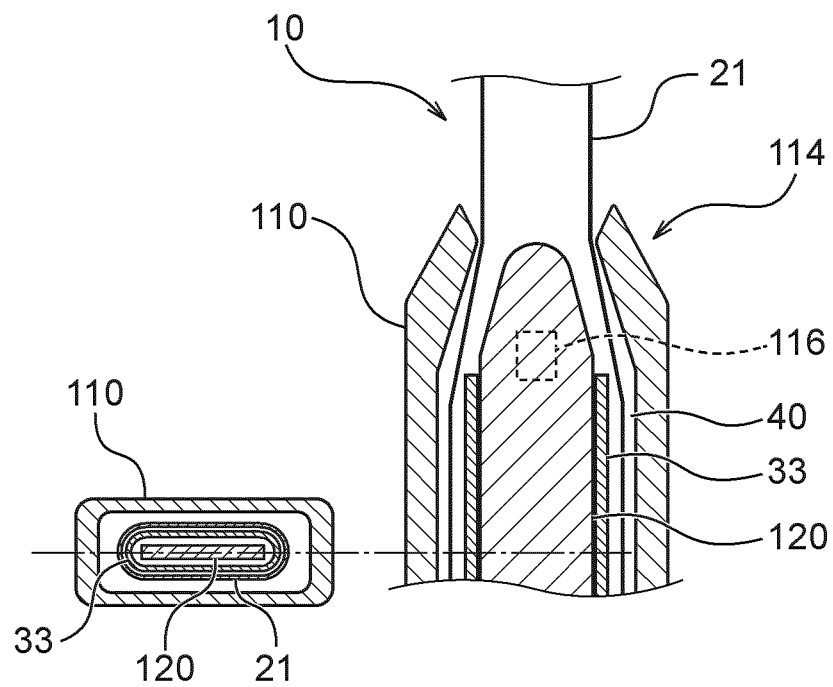
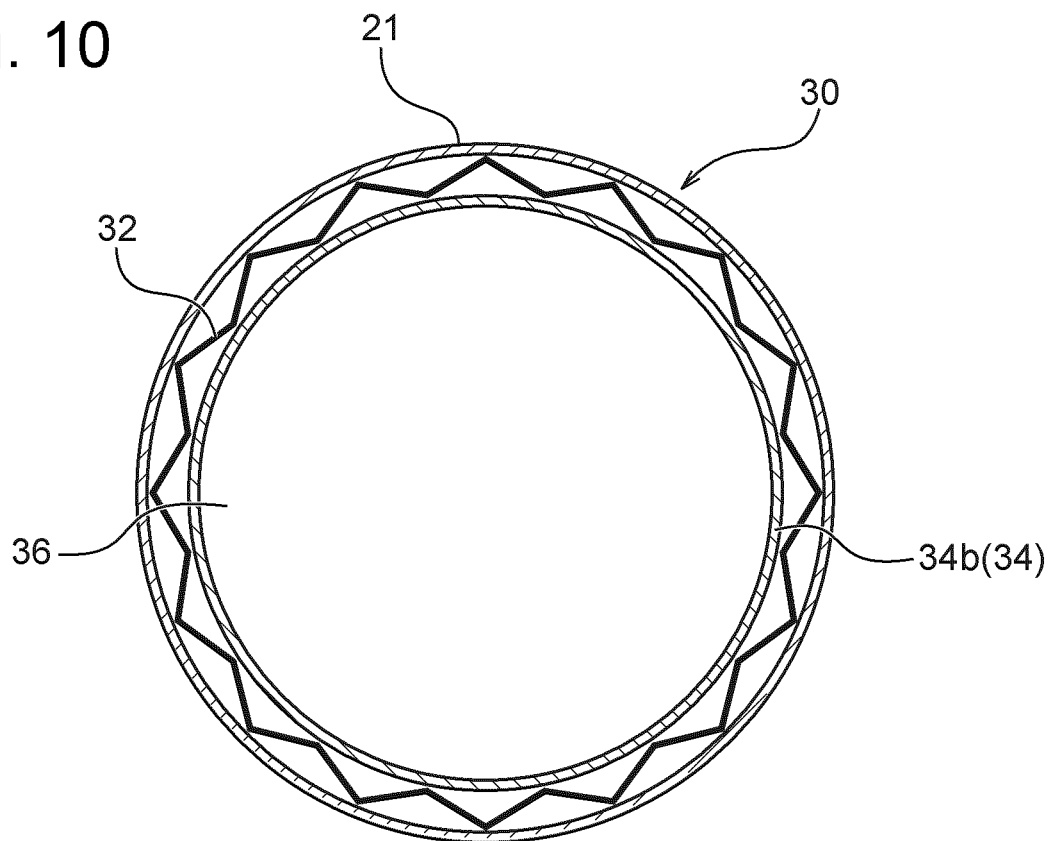


Fig. 10



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2021/042723

A. CLASSIFICATION OF SUBJECT MATTER**A24D 1/20**(2020.01)i; **A24F 40/20**(2020.01)i

FI: A24D1/20; A24F40/20

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)

A24D1/20; A24F40/20

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

Published examined utility model applications of Japan 1922-1996

Published unexamined utility model applications of Japan 1971-2021

Registered utility model specifications of Japan 1996-2021

Published registered utility model applications of Japan 1994-2021

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.
X	JP 2015-503336 A (PHILIP MORRIS PRODUCTS S.A.) 02 February 2015 (2015-02-02) see, in particular, paragraphs [0031], [0034], [0051], [0065], [0071]-[0074], fig. 1-3B	1-4, 6, 11, 15-16, 18-20
A	entire text, all drawings	5, 7-10, 12-14, 17
A	WO 2020/213143 A1 (JAPAN TOBACCO INC.) 22 October 2020 (2020-10-22) entire text, all drawings	1-20

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

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Date of the actual completion of the international search

21 December 2021

Date of mailing of the international search report

11 January 2022

Name and mailing address of the ISA/JP

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/JP2021/042723

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
JP 2015-503336 A	02 February 2015	US 2014/0373856 A1 see, in particular, paragraphs [0030], [0033], [0053], [0067], [0073]-[0076], fig. 1-3 WO 2013/098409 A1 CN 103987286 A KR 10-2014-0118982 A	
WO 2020/213143 A1	22 October 2020	(Family: none)	

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

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2020002165 A [0003]
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Non-patent literature cited in the description

- Collection of Well-known Prior Arts (Flavorings). Japan Patent Office, 14 March 2007 [0056]
- Latest Flavoring Encyclopedia. Asakura Publishing Co., Ltd., 25 February 2012 [0056]
- Tobacco Flavoring for Smoking Products. R.J. REYNOLDS TOBACCO COMPANY, June 1972 [0056]