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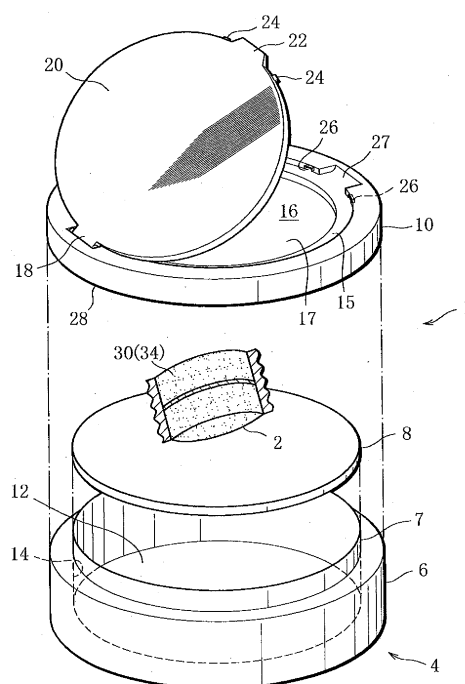
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(54) **ORAL TOBACCO PRODUCT**

(57) An oral tobacco article (1) has a tobacco pouch (2) including a mixture packaged in a nonwoven fabric sheet, the mixture containing tobacco particles made from a tobacco material, as a main ingredient, the tobacco pouch being designed to be put in a user's mouth to allow the user to absorb active constituents of tobacco from the tobacco particles via saliva, an openable and closable case (4) for holding a plurality of the tobacco pouches (2), and silver zoeolite (30) applied as an inorganic antibacterial agent to the tobacco pouch (2) and the case (4).

FIG. 1



Description

Technical Field

[0001] This invention relates to an oral tobacco article allowing users to absorb active constituents of tobacco via saliva.

Background Art

[0002] Cigarettes have long been enjoyed as one of articles of tasting. In recent years, however, smokeless tobacco usable anywhere has been attracting attention. Use of smokeless tobacco is permitted even in places where smoking is prohibited, including airplane cabins and train compartments.

[0003] Snus, an oral tobacco product belonging to the class of smokeless tobacco, contains tobacco shreds, or finely-shredded tobacco material, as a main ingredient. The tobacco shreds constituting snus have a high moisture content.

[0004] More specifically, snus is classified into a loose type, which is non-packaged tobacco shreds, and a portion type called also a pouch type, which has tobacco shreds packaged in a pouch of a nonwoven fabric or other material.

[0005] The pouch-type snus is designed to be put directly in the user's mouth and placed between the upper lip and gum so that the user can absorb active constituents of tobacco extracted from the tobacco shreds into saliva, through the gum into the body while enjoying aroma.

[0006] The oral tobacco products, typified by snus, comprise tobacco shreds having a high moisture content, which easily allow growth of bacteria at room temperature. Thus, long-term room-temperature storage of this type of oral tobacco products should be avoided. The oral tobacco products are therefore kept refrigerated, or salt is added to the tobacco shreds constituting the oral tobacco products. The refrigeration and the addition of salt are effective in inhibiting growth of bacteria in tobacco shreds.

[0007] There is also known a technique of killing bacteria in tobacco shreds by irradiation (patent document 1).

Prior-art Document

Patent Document

[0008]

Patent document 1: U.S. Patent Application Laid-open No. 2008/0173319 Specification

Disclosure of the Invention

Problem to be Solved by the Invention

[0009] Oral tobacco products requiring refrigeration need to be kept refrigerated not only in outlet stores; they need to be kept refrigerated after manufacture, even during transport to the outlet stores. The costs of refrigerating the oral tobacco products are therefore great.

[0010] Addition of a lot of salt to tobacco shreds to improve shelf life of oral tobacco products deteriorates the original flavor and taste of tobacco shreds, and thus is not desirable.

[0011] Sterilization by irradiation requires expensive equipment compared with refrigeration. Further, the equipment using radioactive rays entails safety measure costs.

[0012] An object of the present invention is to provide an oral tobacco article capable of inhibiting growth of bacteria without deteriorating the flavor and taste of tobacco shreds, and allowed to be distributed and stored at room temperature.

Means for Solving the Problem

[0013] In order to achieve the above object, an oral tobacco article according to the present invention comprises a tobacco pouch comprising a mixture packaged in a wrapper, the mixture containing tobacco particles made from a tobacco material, as a main ingredient, the tobacco pouch being designed to be put in a user's mouth to allow the user to absorb active constituents of tobacco from the tobacco particles via saliva, and an openable and closable case for holding the tobacco pouch, wherein at least either the tobacco pouch or the case includes an inorganic antibacterial agent.

[0014] Specifically, the inorganic antibacterial agent may contain silver held on zeolite, and the wrapper may be made from a nonwoven fabric sheet.

[0015] This oral tobacco article can inhibit growth of bacteria in the tobacco pouch by virtue of the inorganic antibacterial agent applied to the tobacco pouch or the case. This oral tobacco article therefore allows room-temperature storage, and thus, does not need to be kept refrigerated during transport and storage, leading to a reduction in costs of transport and storage thereof.

[0016] The tobacco particles desirably have a pH between 6.5 and 9.5 and desirably have a moisture content between 15 and 50 weight %.

Advantages of the Invention

[0017] The oral tobacco article according to the present invention can inhibit growth of bacteria without deteriorating flavor and taste of tobacco shreds, and allows distribution and storage at room temperature.

Brief Description of the Drawings

[0018]

FIG. 1 is a schematic diagram showing an oral tobacco article including an inorganic antibacterial agent, according to the present invention, FIG. 2 is a block diagram showing a process of producing the oral tobacco article shown in FIG. 1, and FIG. 3 is a partial cross-sectional view of a case having a case body, a mat and a lid.

Mode of Carrying out the Invention

[0019] An oral tobacco article 1 shown in FIG. 1 comprises a plurality of tobacco pouches 2 and a portable container or a case 4 for holding the tobacco pouches 2.

[0020] Each tobacco pouch 2 comprises a mixture containing tobacco particles as a main ingredient, packaged in a nonwoven fabric sheet. Specifically, the tobacco particles are obtained by shredding or pulverizing a tobacco material, and 2 mm or less in particle diameter.

[0021] The tobacco pouches 2 are each removed from the case 4 to be used in the user's mouth. Specifically, the tobacco pouch 2 is placed between the user's upper lip and gum so that active constituents of tobacco extracted from the tobacco particles into saliva are absorbed into the body through the gum.

[0022] The case 4 comprises a case body 6, a mat 8 and a lid 10. The case body 6 is in a flat cylindrical shape, and has an opening 7 at the top. Specifically, an upward-projecting circular portion provides the opening 7, which is closed with an openable and closable lid 10.

[0023] The mat 8 is in a circular shape with a diameter approximately equal to a diameter of an inner wall surface 14 of the case body 6, and placed at the bottom 12 of the case body 6. Thus, inside the case 4, the tobacco pouches 2 are stacked on the mat 8

[0024] The lid 10 is in a circular shape with an outside diameter equal to the outside diameter of the case body 6. The upper face of the lid 10 has an approximately-circular stepped recess 16. The stepped recess 16 has a bottom 17 and an annular lid rest 15 around the bottom 17. The depth up to the lid rest 15 is smaller than the depth up to the bottom 17. A hinge 14 is provided at the periphery of the lid rest 15 to join a circular cover 20 to the lid 10. The cover 20 has a diameter approximately equal to the outside diameter of the lid rest 15 so that the cover 20 fits in the stepped recess 16 with its peripheral portion in close contact with the lid rest 15 of the recess 16, and thus, closes the recess 16. The cover 20 in this closed position can be turned upward on the hinge 18 to give access to the hollow 16. The recess 16 is thus closed with the openable and closable cover 20. With the recess 16 closed with the cover 20, the top of the lid 10, or its annular top surface is flush with the upper face of the cover 20.

[0025] The cover 22 has a knob 22 projecting from the

circumference thereof. The knob 22 is located apart from the hinge 18 in a diametrical direction of the cover 20. The lid 10 has a shallow shelf 27 in its annular top surface to receive the knob 22. The knob 22 facilitates the cover 20 opening operation. The cover 20 also has claws 24 at the circumference thereof, on either side of and adjacent to the knob 22, while the inner wall of the recess 16 has holes 26 at the locations corresponding to the claws 24. The cover 20 is closed with the claws 24 engaged with the holes 24, and thus, kept in the closed position.

[0026] The recess 16 has a capacity enough to hold some tobacco pouches 2. The lid 10 thus provides a trash container for temporarily holding used tobacco pouches 2. The case 4 can thus hold unused tobacco pouches 2 and used tobacco pouches 2, separately.

[0027] Also the lower face of the lid 10 has a circular recess. The circular recess has a diameter somewhat greater than the outer diameter of the upper-projecting portion which provides the opening 7 to receive the upper-projecting portion. The ceiling 28 of the circular recess (see FIG. 3) serves as a surface for holding tobacco pouches 2 down within the case body 6.

[0028] The user can remove the lid 10 from the case 4 to expose the opening 7, and remove a tobacco pouch 2 from the case body 6 through the opening 7. The tobacco pouch 2 removed is placed between the user's upper lip and gum to allow active constituents of tobacco to be extracted from tobacco particles in the tobacco pouch 2 into saliva and absorbed into the user's body via saliva. The user can thus absorb the active constituents of tobacco while enjoying the aroma of tobacco particles.

[0029] The tobacco pouch 2 does not emit smoke during the above-described manner of use, which allows the user to use the tobacco pouch 2 anywhere. The user can put the used tobacco pouch 2 in the recess 16 of the lid 10 by taking the knob 22 of the cover 20 between fingers and raising, thus opening the cover 20.

[0030] To promote the extraction of active constituents of tobacco into saliva, the tobacco particles in the tobacco pouch 2 have a high moisture content compared with normal cigarettes, which leads to ease of growth of bacteria in the tobacco particles.

[0031] Thus, a granular inorganic antibacterial agent 30 is applied to the pouch, or nonwoven fabric of the tobacco pouch 2, all over. The inorganic antibacterial agent 30 used in the present embodiment is silver zeolite. Silver zeolite contains silver held on zeolite. The silver zeolite applied to the pouch can come in contact with tobacco particles in the tobacco pouch 2.

[0032] Silver zeolite suitable for this use is Zeomic (trademark) produced by SINANEN ZEOMIC CO., LTD. The Zeomic is approximately 1 μ m in particle diameter, and capable of trapping and releasing water molecules in and from minute holes in its porous structure. Silver zeolite has therefore not only an originally-intended antibacterial effect but also an effect of regulating moisture in the tobacco pouch 2. In other words, silver zeolite has a moisture retention effect, or effect of maintaining the

moisture of the tobacco particles in the tobacco pouch 2.

[0033] Silver zeolite is alkaline, whose pH range (7 to 9) is approximately equal to that of the tobacco particles which are also alkaline. Silver zeolite therefore does not acidify the tobacco particles, and thus, does not deteriorate the flavor of the tobacco particles.

[0034] To verify the antibacterial effect of silver zeolite, embodiment tobacco pouches 2 with silver zeolite applied and comparative-example tobacco pouches without silver zeolite were prepared, and viable bacteria were intentionally attached to the tobacco particles in both types of tobacco pouches. Specifically, the examination was conducted according to the agar pour plate method prescribed in the Japanese Pharmacopoeia. For 1g of tobacco particles, approximately 300 coliform bacteria were attached. The embodiment and comparative-example tobacco pouches were left at room temperature for one week, and then examined as to how many viable bacteria were present in each tobacco pouch. The examination revealed that there was no change in the number of viable bacteria in the embodiment tobacco pouches 2, while the viable bacteria increased to approximately 1000 for 1g of tobacco particles in the comparative-example tobacco pouches.

[0035] Next, embodiment case devices and comparative-example case devices were prepared. The embodiment case devices have an antibacterial layer 32 applied to entirely cover the inner wall surface 14 of the case body 6, one surface of the mat 8 and the ceiling 28 of the lid 10. The antibacterial layer 32 contains silver zeolite. The comparative-example case devices differ from the embodiment case devices only in that they have no antibacterial layer 32. The aforementioned comparative-example pouches with the viable bacteria attached in the aforementioned proportion were put in the embodiment and comparative-example case devices. The embodiment and comparative-example case devices were left at room temperature for one week, and then examined as to how many viable bacteria were present in each tobacco pouch. The examination revealed that there was no change in the number of viable bacteria in the tobacco pouches 2 placed in the embodiment case devices, while the viable bacteria increased to approximately 1000 for 1g of tobacco particles in the tobacco pouches placed in the comparative-example case devices.

[0036] This indicates that the antibacterial layer 32 applied to the inner wall surface 14 of the case body 6, the mat 8 or the ceiling 28 of the lid 10 can inhibit growth of bacteria in the tobacco particles.

[0037] Thus, the combination of the embodiment tobacco pouch 2 and the embodiment case device is optimal in terms of effectively inhibiting growth of bacteria in tobacco particles in the tobacco pouch 2.

[0038] The tobacco particles have a high moisture content, and thus, during storage, moisture containing active constituents of tobacco may spread from the tobacco particles into the pouch, or nonwoven fabric of the tobacco pouch 2. To compensate for such loss of active constituents

of tobacco, a food flavoring 34 may be applied to at least one of the pouch, or nonwoven fabric sheet of the tobacco pouch 2, the inner wall surface 14 of the case body 6, the upper surface of the mat 8 and the ceiling 28 of the lid 10.

[0039] If a coupon is put in the case 4, the food flavoring 34 may be applied also to the coupon. When the food flavoring 34 is used, the oral tobacco article 1 desirably includes a humectant such as glycerin or propylene glycol.

[0040] Food flavorings 34 usable include menthol, mint, vanilla, apricot, tea, cacao, licorice, honey, and combinations of two or more of these flavorings. Acid food flavorings 34 are not suitable to be applied to the pouch of the tobacco pouch 2, because the tobacco particles are alkaline as mentioned above.

[0041] The food flavoring 34 is applied in powder form or in liquid form, namely in the form of a solution. Solvents usable include water, alcohol, glycerin and propylene glycol.

[0042] If the food flavoring 34 should be applied to the tobacco pouch 2, the food flavoring 34 containing 1 weight % of glycerin, which functions also as a humectant, is used.

[0043] If the food flavoring 34 should be applied to the case 4, a menthol liquid, or solution containing 1 weight % of menthol dissolved in alcohol is used. The menthol liquid is applied to at least one of the inner wall surface 14 of the case body 6, a surface of the mat 8 and the ceiling 28 of the lid 20 by spray coating.

[0044] Next, how the tobacco pouch 2 is produced will be described.

[0045] FIG. 2 is a block diagram showing the process of producing the tobacco pouch 2.

[0046] As seen from FIG. 2, the tobacco pouch 2 is produced through a pulverizing process 40, a blending process 50 and a packaging process 60.

[0047] First, in the pulverizing process 40, laminae and stems of domestic Burley tobacco are pulverized separately using a pulverizer. The resulting tobacco particles have particle diameter of 2mm or less. The tobacco particles are put in a classifier to sort out tobacco particles with predetermined size. Then, the lamina-derived tobacco particles and the stem-derived tobacco particles are measured out in the proportion of 50 to 50 weight % and brought to the blending process 50.

[0048] In the blending process 50, the measured-out tobacco particles are moved to a buffer silo 1 to be stored therein for a predetermined period of time. Then, the tobacco particles are heat-sterilized and cooled, and then subjected to a blender processing. By the blender processing, the tobacco particles are blended with a flavoring and other additives.

[0049] Specifically, in the blender processing, first, water is added to the tobacco particles so that the tobacco particles contain 15 weight % of moisture. Then, the tobacco particles are sterilized by being heated at 100°C for 4 hours, and then cooled by circulating coolant water.

Then, 10 weight % of potassium carbonate, 1 weight % of vitamin C, 5 weight % of flavoring, sodium chloride and others are added to the tobacco particles.

[0050] These additives and the tobacco particles are mixed to form a mixture containing the tobacco particles as a main ingredient. The mixture is then brought to the packaging process 60. The tobacco particles in the mixture have desirably a pH between 6.5 and 9.5.

[0051] The packaging process 60 includes a process in a buffer silo 2; the mixture resulting from the blending process 50 is stored in the buffer silo 2 for a predetermined period of time.

[0052] After the predetermined time of storage, the tobacco particles are pillow-packaged in a nonwoven fabric sheet containing 1 weight % of silver zeolite, by 3g per package, so that the above-described tobacco pouches 2 are obtained. The tobacco pouch 2 is in the shape of an approximately 12x25 mm rectangle.

[0053] Then, water is added to the tobacco pouches 2 to regulate their moisture content to 25 weight %. A predetermined number of tobacco pouches 2 with the moisture content thus regulated are put in a case 4 with a mat 8. By closing the case 4 with a lid 10, the oral tobacco article 1 shown in FIG. 1 is completed.

[0054] If the food flavoring 34 should be applied to the tobacco pouch 2, the food flavoring 34 containing glycerin is applied to the tobacco pouch 2 after the moisture content regulation.

[0055] As mentioned above, in the present embodiment, the antibacterial layer 32 is applied to at least one of the inner wall surface 14 of the case body 6, the mat 8 and the lid 10, as indicated in FIG. 3.

[0056] If the food flavoring 34 should be applied to the case 4, the aforementioned menthol liquid is applied to at least one of the inner wall surface 14 of the case body 6, the mat 8 and the ceiling 28 of the lid 10 by spray coating, either directly onto such part or onto the antibacterial layer 32 covering such part.

[0057] In place of the food flavoring containing glycerin, the menthol liquid may be applied to the tobacco pouch by spray coating.

[0058] By virtue of the antibacterial agent 30 or the antibacterial layer 32 applied to the tobacco pouches 2, the case body 6, the mat 8 or others, specifically silver zeolite contained therein, the oral tobacco article 1 can inhibit growth of bacteria in the tobacco pouches 2. The oral tobacco article 1 therefore allows room-temperature storage, and thus, does not need to be kept refrigerated during transport and storage, leading to a reduction in costs of transport and storage thereof.

[0059] The food flavoring 34 applied to the entire outside of the tobacco pouch 2 or the inside part of the case 4 allows the user to enjoy the aroma of the food flavoring 34 in use of the oral tobacco article 1.

[0060] The present invention is not limited to the above-described embodiment; various modifications may be made to it.

[0061] For example, the inorganic antibacterial agent

30 and the antibacterial layer 32 are not limited to silver zeolite; they may contain any other suitable substance that can inhibit growth of bacteria.

[0062] The pouch, or nonwoven fabric sheet of the tobacco pouch 2 may contain silver zeolite in its fibers.

[0063] The case body 6, the mat 8 and the lid 10 may be formed from materials containing silver zeolite.

Explanation of Reference Characters

[0064]

1: Oral tobacco article

2: Tobacco pouch

4: Case

6: Case body

7: Opening

8: Mat

10: Lid

12: Bottom

14: Inner wall surface

15: Lid rest

16: Recess

17: Bottom

18: Hinge

20: Cover

22: Knob

24: Claw

26: Engagement hole

27: Recess

28: Ceiling

30: Inorganic antibacterial agent

32: Antibacterial layer

34: Food flavoring

40: Pulverizing process

50: Blending process

60: Packaging process

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Claims

1. An oral tobacco article comprising:

a tobacco pouch including a mixture packaged in a wrapper, the mixture containing tobacco particles made from a tobacco material, as a main ingredient, said tobacco pouch being designed to be put in a user's mouth to allow the user to absorb active constituents of tobacco from the tobacco particles via saliva; and an openable and closable case for holding said tobacco pouch, wherein at least either said tobacco pouch or said case includes an inorganic antibacterial agent.

2. The oral tobacco article according to claim 1, wherein the inorganic antibacterial agent contains silver held on zeolite.

3. The oral tobacco article according to claim 1, wherein the tobacco particles have a pH between 6.5 and 9.5.

4. The oral tobacco article according to claim 1, wherein the tobacco particles have a moisture content between 15 and 50 weight %.

5. The oral tobacco article according to claim 1, wherein the wrapper is made from a nonwoven fabric sheet.

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FIG. 1

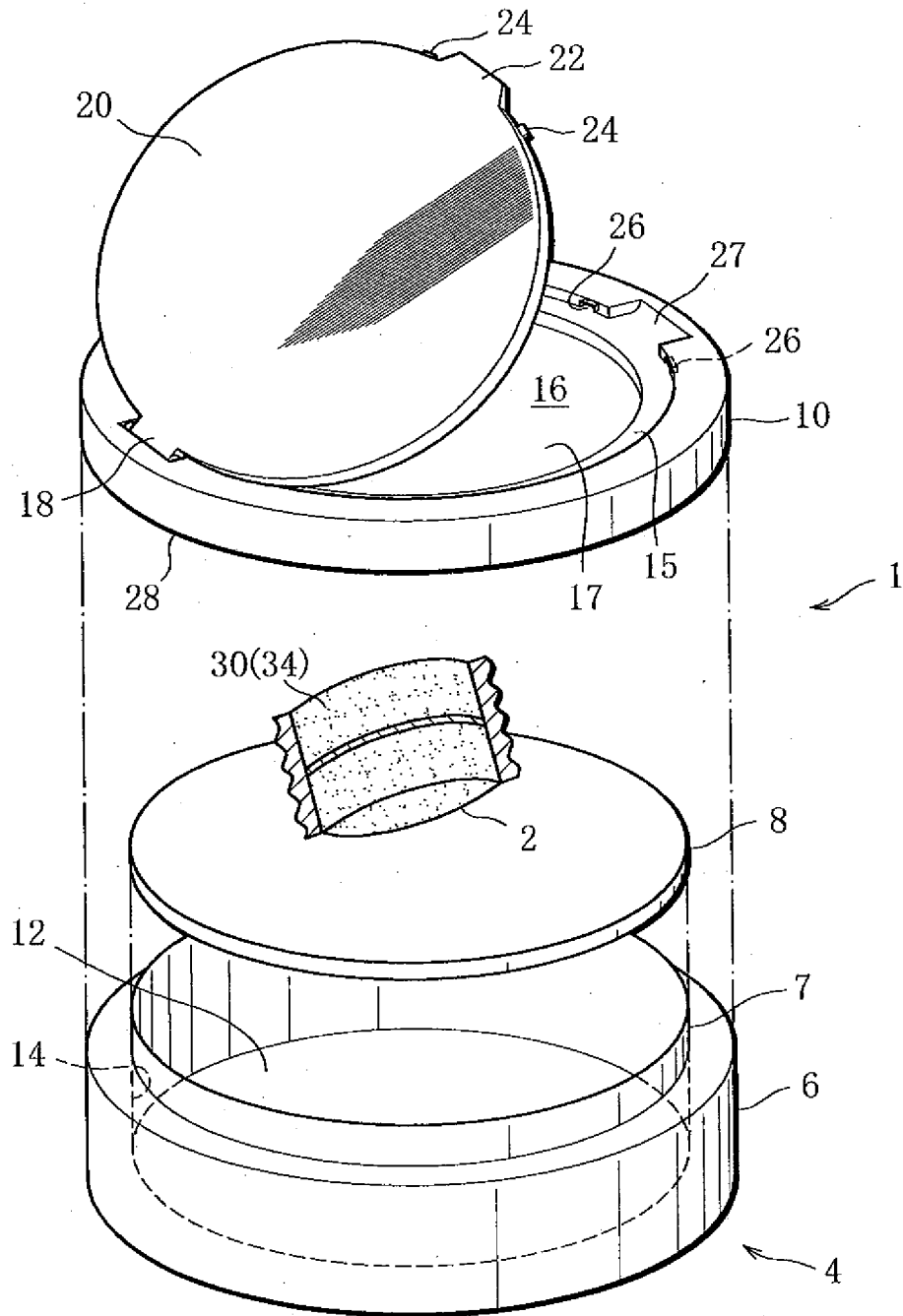


FIG. 2

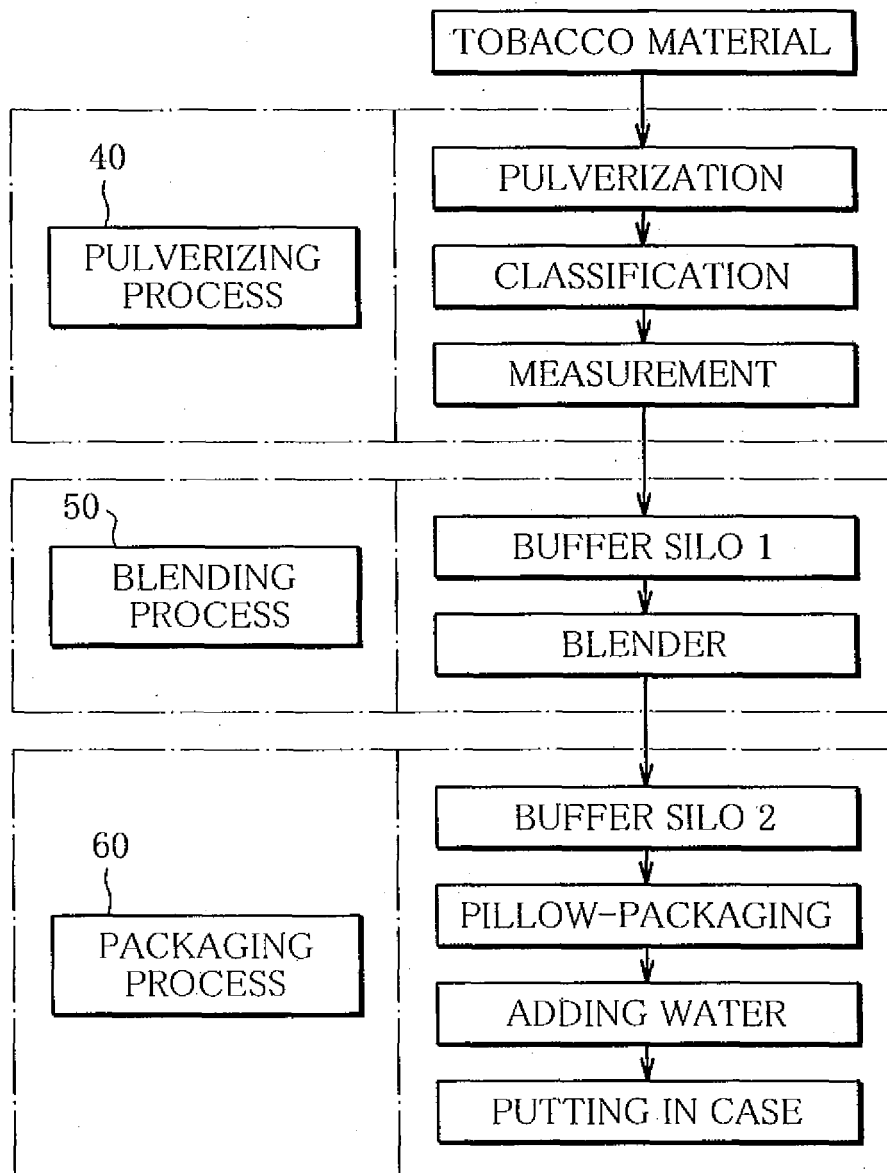
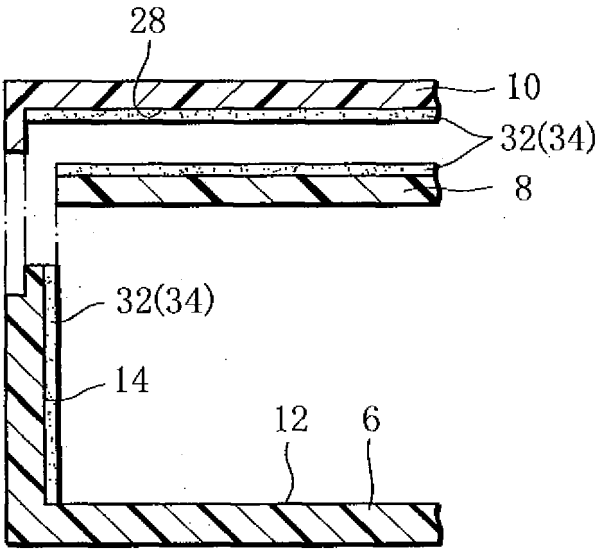


FIG. 3



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2010/059669

A. CLASSIFICATION OF SUBJECT MATTER <i>A24B13/00</i> (2006.01) i, <i>A24B15/10</i> (2006.01) i, <i>A24F23/02</i> (2006.01) i, <i>B65D81/28</i> (2006.01) i, <i>B65D85/00</i> (2006.01) i According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) <i>A24B13/00</i> , <i>A24B15/10</i> , <i>A24F23/02</i> , <i>B65D81/28</i> , <i>B65D85/00</i> 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 1996-2010 Kokai Jitsuyo Shinan Koho 1971-2010 Toroku Jitsuyo Shinan Koho 1994-2010 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPI		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2008/016520 A2 (R.J.REYNOLDS TOBACCO CO.), 07 February 2008 (07.02.2008), entire text; all drawings & JP 2009-545315 A & US 2008/0029116 A1 & US 2008/0029117 A1 & US 2008/0173317 A1 & EP 2048976 A & WO 2009/091717 A2 & CN 101495002 A	1-5
Y	JP 4-367473 A (Yamato Esulon Co., Ltd.), 18 December 1992 (18.12.1992), entire text; all drawings (Family: none)	1-5
Y	JP 10-271981 A (Kenji NAKAMURA), 13 October 1998 (13.10.1998), entire text; all drawings (Family: none)	1-5
☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 14 September, 2010 (14.09.10)		Date of mailing of the international search report 28 September, 2010 (28.09.10)
Name and mailing address of the ISA/ Japanese Patent Office		Authorized officer
Facsimile No.		Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2010/059669

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	CD-ROM of the specification and drawings annexed to the request of Japanese Utility Model Application No. 51735/1992 (Laid-open No. 5496/1994) (Kabushiki Kaisha Hosen Shokai), 25 January 1994 (25.01.1994), entire text; all drawings (Family: none)	5
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