



## Description

### Technical Field

**[0001]** The present invention relates to a filter and a tobacco product.

### Background Art

**[0002]** Conventionally, there is proposed a filter cigarette, in which a tip section and a body section rotatably engage, the body section adjacent to the tip section, and the tip section are divided into one segment that is filled with a tobacco filter, and the other segment that is not filled with the tobacco filter, in the longitudinal direction, respectively, and a degree of filtration action of smoke is variable depending on a relative angle (for example, Patent document 1). There is proposed a smoking article in which an opening end region is surrounded by rolled letter paper having an opening, and tip adhering paper having an opening, and one opening is rotatable with respect to the other opening so as to adjust the degree of matching of the opening in order to change an amount of air to the opening end region (for example, Patent document 2).

### **[0003]**

[Patent document 1] U.S. Patent No. 3428050

[Patent document 2] Japanese Patent Publication No. 2-28318

### Summary of the Invention

#### Technical Problem

**[0004]** Conventionally, a technology of varying a filtering characteristic or an air introduction ratio of a tobacco product is proposed, but a structure is complicated, and there is a problem that labor and cost in manufacturing are required. Therefore, an object of the present invention is to enable change of a filtering characteristic of a tobacco product with a simple configuration.

#### Solution to Problem

**[0005]** A filter according to one aspect of the present invention is a filter for a tobacco product provided with a through hole along the axial direction. Additionally, the filter includes a slit on a circumference of the filter along a circumferential direction, wherein a cross-sectional area of the through hole is changed by twisting both sides in the axial direction of the filter in relatively opposite directions along the circumferential direction with the slit as a boundary.

**[0006]** Thus, ventilation resistance is changed with the change of the cross-sectional area, and it is possible to change a filtering characteristic of the tobacco product including the filter. That is, the filtering characteristic of the tobacco product can be changed with a simple con-

figuration.

**[0007]** A tobacco product according to another aspect of the present invention is a filter provided with a through hole along an axial direction, the filter including a slit on a circumference of the filter along a circumferential direction, wherein a cross-sectional area of the through hole is changed by twisting both sides in the axial direction of the filter in relatively opposite directions along the circumferential direction with the slit as a boundary; tip paper that wraps at least a part of the filter; and a tobacco rod including shredded tobacco and connected to the filter through the tip paper. Thus, ventilation resistance is changed with the change of the cross-sectional area, and a filtering characteristic of the tobacco product is also changed. That is, the filtering characteristic of the tobacco product can be changed with a simple configuration.

**[0008]** The tip paper may have a cut or slits along the circumferential direction of the tobacco product, a portion on the shredded tobacco side with respect to the cut or the slits may be connected to a portion on the shredded tobacco side with respect to the slit in the filter, and a portion on a mouthpiece side with respect to the cut or the slits in the tip paper may be connected to a portion on the mouthpiece side with respect to the slit in the filter. Thus, the tip paper connected to the portion on the shredded tobacco side with respect to the slit in the filter, and the tip paper connected to the portion on the mouthpiece side in the filter rotate in the directions opposite to each other with the cut as a boundary.

**[0009]** The tip paper may have a perforation on the mouthpiece side with respect to the slit of the filter. Thus, with the change of the cross-sectional area of the through hole of the filter, an air introduction ratio from a perforation when a user puffs the tobacco product is changed.

**[0010]** In the tobacco product, a seasoning source containing a taste component or a flavor component may be held on the tobacco rod side with respect to the slit. Thus, it is possible to provide the tobacco product capable of changing a discharge amount of the taste component or the flavor component by twisting the filter.

**[0011]** A solution for solving the problem of the present invention can be employed by combining as much as possible.

#### Effects of the invention

**[0012]** According to the present invention, it is possible to change a filtering characteristic of a tobacco product with a simple configuration.

#### Brief Description of the Drawings

### **[0013]**

Fig. 1 is an exploded perspective view illustrating an example of a cigarette.

Fig. 2 is a perspective view for illustrating a modification of a center hole filter.

Fig. 3 is a longitudinal sectional view schematically representing a cigarette.

Fig. 4 is a schematically sectional view illustrating a state in which a CH segment of the cigarette is twisted.

Fig. 5 is a schematically sectional view illustrating a state in which the CH segment of the cigarette is further twisted.

Fig. 6 is a longitudinal sectional view illustrating an example of a cigarette including seasoning sources therein.

Fig. 7 is a schematically sectional view illustrating a state in which the CH segment of the cigarette is twisted.

Fig. 8 is a schematically longitudinal sectional view illustrating an example of a cigarette having a cavity holding seasoning sources.

Fig. 9 is a view schematically illustrating a method for manufacturing a cigarette.

Fig. 10 is a view illustrating an example of a cigarette 1 having a cut provided on a slit.

Fig. 11 is an example of a cross section of a cigarette cut on the slit.

#### Description of Embodiment

**[0014]** An embodiment of a tobacco product according to the present invention will be described with reference to the drawings.

#### <Embodiment 1>

**[0015]** Fig. 1 is an exploded perspective view illustrating a filter cigarette (paper-wrapped cigarette, sometimes simply referred to as a "cigarette") being an example of a tobacco product. The cigarette 1 is formed in a substantially columnar shape. In this embodiment, the longitudinal direction of the cigarette 1 is referred to as the axial direction, and a curved surface is also referred to as a side surface. The cigarette 1 includes a tobacco rod 11, a center hole (CH) filter 12, and an acetate filter 13. The tobacco rod 11 is obtained by wrapping shreds of a leaf tobacco (also referred to as "shredded tobacco") with rolled letter paper. The CH filter 12 is a cylindrical filter provided with a through hole (center hole) 121 at a substantially center of a cross section along the axial direction of a substantially columnar shaped filter. On a circumference of the CH filter 12 near the center in the axial direction, a slit 122 being a non-penetration cut is provided over a whole circumference along the circumferential direction. The CH filter 12 can be formed by adding a plasticizer to acetate fiber similarly to a general filter, and a side surface circumference is wrapped with material paper (not illustrated). The slit 122 is provided from above the material paper. The acetate filter 13 is a general filter formed in a columnar shape by acetate fiber.

**[0016]** The CH filter 12 and the acetate filter 13 are disposed adjacent in the axial direction, and side surface

circumferences are wrapped with formed paper 14, and the CH filter 12 and the acetate filter 13 are formed in a columnar shape. The formed paper 14 is provided with a cut 141 on a shred side in the axial direction of the cigarette 1 with respect to the slit 122. In the formed paper 14, an adhesive (not illustrated) is applied to a portion at which ends of the formed paper 14 overlap on each other, the ends of the formed paper 14 are stuck to each other, an adhesive (not illustrated) is also applied to a part of an inner circumference along the axial direction, and the CH filter 12 and the acetate filter 13 are adhered.

**[0017]** The tobacco rod 11 and the CH filter 12, and the acetate filter 13 are disposed adjacent in the axial direction, side surface circumferences are wrapped with a tip paper 15, and the tobacco rod 11, the CH filter 12, and the acetate filter 13 are formed in a columnar shape. The tip paper 15 is provided with a cut 151 on a shred side in the axial direction of the cigarette 1 with respect to the slit 122, and is provided with an air supply unit (also referred to as a "perforation") 152 being a through hole for taking air when a user of the cigarette 1 puffs, on the mouthpiece side (that is, the acetate filter 13 side) with respect to the slit 122. The air supply unit 152 is an intake port that takes air for diluting mainstream smoke from outside in the filter. More specifically, an air supply unit 152 is composed of a plurality of dot-like holes provided over a whole circumference of the CH filter 12. In the tip paper 15, overlapped portions of ends of the tip paper 15 are stuck to each other with an adhesive, an adhesive (not illustrated) is also applied to a part of an inner circumference along the axial direction, and the tobacco rod 11 and the CH filter 12, and the acetate filter 13 are adhered.

**[0018]** Fig. 2 is a perspective view for illustrating a modification of the CH filter 12. As illustrated by the arrow of Fig. 2, in the CH filter 12 according to this embodiment, both sides in the axial direction of the slit 122 is twisted in the directions opposite to each other along the circumferential direction, so that the shape of the cross section can be changed. That is, the CH filter 12 is twisted, so that shearing stress is concentrated on a portion in which the slit 122 is provided, and the portion in which the slit 122 is provided is throttled, the inner diameter of the through hole 121 is reduced, and the through hole 121 can be closed. Thus, the CH filter 12 changes the ventilation resistance of the CH filter 12 with a simple configuration, and it is possible to change a ratio of air introduced from the air supply unit 152 (air introduction ratio). When the CH filter 12 is twisted, the outer diameter of the portion in which the slit 122 is provided may not be changed, or may be changed.

**[0019]** Fig. 3 is a longitudinal sectional view schematically representing the cigarette 1. In Fig. 3, the thickness and the like of the rolled letter paper such as the tip paper are emphasized and represented, and clearances are provided in order to emphasize portions which are not adhered. The cigarette 1 has a plurality of segments that are regions having different properties arranged in the

axial direction. More specifically, the cigarette 1 has a tobacco rod segment 110 including the tobacco rod 11, a center hole (CH) segment 120 (120a and 120b) including the CH filter 12 having the through hole 121, and an acetate filter segment 130 on the mouthpiece side including the acetate filter 13. The slit 122 is provided at a substantially center in the axial direction of the CH filter 12, and both sides of the slit 122 are divided into a shred side portion 120a and a mouthpiece side portion 120b in the example of Fig. 3. As illustrated in Fig. 1, the formed paper 14 is provided with the cut 141 over a whole circumference of a side surface, and the tip paper 15 is provided with the cut 151 over a whole circumference of a side surface.

**[0020]** Fig. 3 illustrates an adhesive 142 and an adhesive 153 between the formed paper 14 and the CH filter 12, and between the acetate filter 13, and between the tip paper 15 and the tobacco rod 11, and the formed paper 14, respectively. The adhesive 142 and the adhesive 153 are each applied to a part in the circumferential direction. There are portions in which the adhesive 142 and the adhesive 153 are not applied to respective axial one parts over the whole circumferences corresponding to the cut 141 of the formed paper 14 and the cut 151 of the tip paper 15. That is, the slit 122 communicates with the cut 151 of the tip paper 15 over the whole circumference of the side surface. In other words, the shred side of the cut 141 provided along the circumferential direction in the formed paper 14 is adhered to the shred side with respect to the slit 122 of the CH filter 12, the mouthpiece side with respect to the cut 141 in the formed paper 14 is adhered to the mouthpiece side with respect to the slit 122 of the CH filter 12. Similarly, the shred side of the cut 151 provided along the circumferential direction in the tip paper 15 is indirectly adhered to the shred side of the CH filter 12 with respect to the slit 122 through the formed paper 14, and the mouthpiece side of the tip paper 15 with respect to the cut 151 is indirectly adhered to the mouthpiece side of the CH filter 12 with respect to the slit 122 through the formed paper 14. Herein, when the shred side portion 120a and the mouthpiece side portion 120b of the slit 122 are connected through the formed paper 14 or the tip paper 15, rotation is prevented when a user twists the CH filter 12. In this embodiment, the cut 141 of the formed paper 14 and the cut 151 of the tip paper 15 are provided, so that the formed paper 14, and the tip paper 15 are each divided into a portion connected to the shred side of the slit 122, and the mouthpiece side of the slit 122, and it is possible to relatively rotate the shred side portion 120a and the mouthpiece side portion 120b.

**[0021]** The tip paper 15 is provided with the air supply unit 152. In a state in which the through hole 121 is not throttled as in Fig. 3, the ventilation resistance of the through hole 121 is low, an amount of the air taken from the through hole 121 to the mouthpiece side is larger than an amount of the air taken from the air supply unit 152 to the mouthpiece side, as illustrated by the thickness

of dash line arrows.

**[0022]** Fig. 4 is a schematically sectional view illustrating a state in which the CH segment 120 of the cigarette 1 illustrated in Fig. 3 is twisted. In the example of Fig. 4, the shred side portion 120a and the mouthpiece side portion 120b of the CH segment 120 are twisted in the directions opposite to each other, the diameter of the cross section of the CH filter 12, and the inner diameter of the through hole 121 inside the CH filter 12 are reduced at the portion of the slit 122 as a boundary compared to the state illustrated in Fig. 3. At this time, the ventilation resistance of the through hole 121 is increased compared to the state illustrated in Fig. 3. Therefore, as illustrated by dashed lines in Fig. 4, an introduction amount of the air taken from the through hole 121 is reduced compared to the state illustrated in Fig. 3. On the other hand, an introduction amount of the air taken from the air supply unit 152 is increased compared to the state illustrated in Fig. 3.

**[0023]** Fig. 5 is a schematically sectional view illustrating a state in which the CH segment 120 of the cigarette illustrated in Fig. 4 is further twisted. In the example of Fig. 5, the diameter of the cross section of the CH filter 12, and the inner diameter of the through hole 121 inside the CH filter 12 are further reduced at the portion of the slit 122 compared to the state illustrated in Fig. 4, and a state in which the through hole is completely closed by twisting is represented herein. At this time, the ventilation resistance of the through hole 121 is further increased compared to the state illustrated in Fig. 4. Therefore, as illustrated by dashed lines in Fig. 5, an introduction amount of the air taken from the through hole 121 is further reduced compared to the state illustrated in Fig. 4, and an introduction amount of the air taken from the air supply unit 152 is further increased compared to the state illustrated in Fig. 4.

**[0024]** As described above, in the CH filter 12 of the cigarette 1 according to this embodiment, the cross-section area of the through hole 121 inside the CH filter 12 is changed by twisting. The ventilation resistance can be changed with this, and the introduction amount of the air from the air supply unit 152 is changed. That is, the air introduction ratio of the tobacco product can be changed with a simple configuration, and mainstream smoke passing through the CH filter can pass through a filter material portion, pass through a cavity portion, or be changed, and therefore it is possible to change a filtration rate of nicotine or tar.

<Embodiment 2>

**[0025]** Fig. 6 is a longitudinal sectional view illustrating an example of a cigarette including seasoning sources therein. In Embodiment 2, powder balls 16 are included in a through hole 121. The powder ball is a powder containing material obtained by forming base power containing at least any one of taste components and flavor components as one lump, and becomes powder by adding

external force. When a user puffs, the powder passes through the through hole 121 to be introduced in oral cavity of the user. The user presses a cigarette 1 to make the powder balls 16 in the cigarette into powder, and puffs the powder, so that it is possible to obtain flavor or scent, or both. In the cigarette 1 according to this embodiment, the inner diameter of the through hole 121 is changed, so that the ventilation resistance is changed, and a discharge amount of the powder to the oral cavity of the user is changed at the same time. Such powder balls can be manufactured by using an existing technology.

**[0026]** In Embodiment 2, an acetate filter 13 is disposed between a tobacco rod 11 and a CH filter 12. Thus, it is possible to prevent movement of the shred tobacco into the through hole 121, and movement of the powder of the powder balls 16 into the tobacco rod 11. In an end on the mouthpiece side, which a user holds in his/her mouth, the through hole 121 of the CH filter 12 is opened. As illustrated in Fig. 6, the through hole 121 is closed in an initial state of a product, so that powder balls 16 and its power are not spilled to the outside of the cigarette 1.

**[0027]** Fig. 7 is a schematically sectional view illustrating a state in which the CH segment 120 of the cigarette 1 illustrated in Fig. 6 is twisted. That is, Fig. 7 illustrates a state in which a shred side portion 120a and a mouthpiece side portion 120b of the CH segment 120 illustrated in Fig. 6 are twisted in the direction opposite to each other, the directions being the directions in which the inner diameter of the through hole 121 are opened. In Fig. 7, at the portion of a slit 122 as a boundary, the diameter of the cross section of the CH filter 12, and the inner diameter of the through hole 121 inside the CH filter 12 are increased compared to the state illustrated in Fig. 6. In Fig. 7, the powder balls 16 are crushed to become powder 16a. When a user puffs, the powder 16a, as illustrated in Fig. 6, passes through the through hole 121 to move to an oral cavity of the user.

**[0028]** As described above, in the CH filter 12 of the cigarette 1 according to Embodiment 2, the ventilation resistance and the filtration rate can be changed by twisting. Consequently, it is possible to change the air introduction amount from an air supply unit 152, and change a physical movement amount of the powder in the through hole 121.

**[0029]** In Fig. 6 and Fig. 7, the powder balls 16 are illustrated. However, the cigarette 1 may hold flavor capsules (not illustrated) being a capsule-like seasoning source containing a liquid flavor component. A user can break the flavor capsules by applying external force to the flavor capsules by pressing from the outside of the cigarette 1. When the flavor capsules are broken, the flavor components in the flavor capsules are discharged, and the flavor components are supported on the CH filter 12. Then, at least a part of the flavor components is vaporized or aerosolized, and the user can feel flavor by puffing this. Also in this case, the user changes ventilation resistance by twisting the CH filter 12, and changes an air introduction amount from the CH filter 12 (that is, an

amount of the air introduced through a portion on which the flavor components are supported in the CH filter 12), so that it is possible to change an amount of the flavor component contained in intake air. Such flavor capsules can be also manufactured by using an existing technology.

**[0030]** The seasoning source such as the powder balls 16 and the flavor capsules may be held not in the through hole 121 of the CH filter 12, but in a cavity being a cavity portion wrapped with tip paper or formed paper. Fig. 8 is a schematically longitudinal sectional view illustrating an example of a cigarette having a cavity holding seasoning sources. In the example of Fig. 8, a cavity segment 160 being a cavity region wrapped with formed paper 14 and tip paper 15 is present between the acetate filter 13 and the CH filter 12 of the cigarette 1 illustrated in Fig. 6 and Fig. 7. Then the powder balls 16 are held in the cavity segment 160. As described above, in place of the powder balls 16, the flavor capsules may be held in the cavity. In a case in which the flavor capsules are held, a material having water resistance or oil resistance in accordance with a property of flavor contained by the flavor capsules may be employed as the formed paper 14 or the tip paper 15. In Embodiment 2, any air supply unit 152 of the tip paper 15 may not be provided.

#### <Manufacturing Method>

**[0031]** Fig. 9 is a view schematically illustrating a method for manufacturing the cigarette 1 having the cavity illustrated in Fig. 8. First, the CH filter 12 having the through hole is formed at substantially the center of the cross section along the axial direction by a thermoforming apparatus (not illustrated) including a cylindrical cavity for forming the outer diameter of the filter, and a mandrel being a jig for providing a through hole in the filter. As illustrated by dashed lines, the CH filter 12 formed in a continuous rod-shape is cut to have twice the length of the filter of a product, for example (Step S1). Thereafter, while each CH filter 12 is rotated in the circumferential direction, the slit 122 is formed around the CH filter 12 by a rotary cutter (Step S2). The CH filters 12 are supplied to a combiner (not illustrated) being a filter manufacturing apparatus. Then, the CH filters 12 are disposed to be aligned with the above powder balls 16 and the acetate filter 13, and are integrally packaged by the formed paper 14 (Step S3). The cut 141 is provided in the formed paper 14. Thereafter, a filter portion composed of the acetate filters 13 packaged with the formed paper 14, the cavity containing the powder balls 16, and the CH filters 12 is cut in a shape in which ends on the mouthpiece side are coupled, as illustrated by a dashed line. Then, the tobacco rods 11 are disposed adjacent to the acetate filters 13 at both ends, and are packaged with the tip paper 15, and thereafter the single cigarette 1 is formed by cutting the center in the axial direction as illustrated by a dashed line (Step S4). The tip paper 15 is provided with the cut 151. The through hole is completely closed by twisting

before the CH filter 12 formed with the slit 122 is supplied to the combiner, so that it is possible to prevent power leakage of the powder balls at the time of manufacturing.

<Modification>

**[0032]** In embodiment 1, the CH filter 12 and the acetate filter 13 may be reversely disposed. That is, as illustrated in Fig. 6, the cigarette 1 may include the CH filter 12 on the mouthpiece side, the acetate filter may be provided between the CH filter 12 and the tobacco rod 11. The single acetate filter 13 may be provided on each of the both sides of the CH filter 12. With these configurations, it is also possible to change an air introduction ratio or a filtration rate of the cigarette 1.

**[0033]** In the embodiments or the modification, at least one of the cut 141 and the cut 151 may be a so-called slits. When a user twists the CH filter 12, paper is separated along slits, the cut 141 and the cut 151 is formed, and the shred side portion 120a and the mouthpiece side portion 120b of the CH filter 12 rotate in the opposite directions. When such formed paper 14 or tip paper 15 is employed, the paper can package as integral rolled letter paper at the time of manufacturing, and can be separated as needed. Similarly, the cut 141 or the cut 151 may be previously separated, and ends of the cuts may overlap on each other.

**[0034]** Relative positions of the cut 141 or the cut 151, and the slit 122 are not limited to the above example. For example, as illustrated in Fig. 10, the cut 141 and the cut 151 may be provided substantially on the slit 122. Thus, the slit 122 can be formed in a batch in a state in which the formed paper 14 or the tip paper 15 is wrapped, and the number of steps for manufacturing can be reduced. Similarly to the air supply unit 152, outside air can be taken also from the slit 122. On the other hand, the user twists the periphery of the slit 122 of the CH filter 12 to change the density of acetate fiber, and therefore in a case in which outside air is introduced from the slit 122, it is difficult to design the amount of the outside air. Therefore, as illustrated in Fig. 3 and the like, a case in which the cut 141 or the cut 151, and the slit 122 is provided so as to be shifted in the axial direction is more preferable in improvement of accuracy of the introduction amount of air from the air supply unit 152. The cut 141 or the cut 151 may be provided on the mouthpiece side in the axial direction with respect to the slit 122.

**[0035]** The through hole 121 of the CH filter 12 may be provided at a position deviated from the center in cross-sectional view. However, the user more easily twists the CH filter 12 in a case in which the through hole 121 is provided at substantially the center of the CH filter. The depth of the slit 122 being a non-penetration groove may be constant over the whole circumference, or may be deviated. For example, Fig. 11 is an example of an A-A sectional view taken along an A-A line illustrated in Fig. 3. More specifically, Fig. 11 represents a cross section obtained by cutting the cigarette 1 on the slit 122. In Fig.

11, the formed paper 14 or the tip paper 15 is omitted. The shape formed by the bottom of the slit 122 may be a precise circle concentric with the outer diameter of the cigarette 1 or the inner diameter of the through hole 121 in the cross-sectional view. The shape formed by the bottom of the slit 122 is made to be concentric with the outer diameter of the cigarette 1 or the inner diameter of the through hole 121, so that when the user twists the CH filter 12, the shearing stress is uniformly applied to the cross section of the CH filter 12, and therefore twisting is facilitated. The shape of such a slit can be changed in accordance with the shape of a rotary cutter forming the slit.

**[0036]** An article that is a filter portion which does not include the above tobacco rod 11, and can be mounted on an arbitrary tobacco product may be provided. Examples of the tobacco product include cigarettes such as a filter cigarette including a filter, and unfiltered cigarettes with no filter, a cigar, and a cigarillo.

**[0037]** Preferable values of the depth of the slit, the ratio of the diameter of the filter and the diameter of the through hole, specifications such as the density of acetate fiber, a dosage of plasticizer, the material, the basis weight, and the like of formed paper or tip paper can be suitably selected. For example, in order to close the through hole 121, the inner diameter of the through hole 121 is preferably at least a half the diameter of the CH filter 12, and more preferably at least one-third the diameter of the CH filter 12. In order to facilitate operation of twisting, the slit 122 is preferably deeper. On the other hand, for example, the residual thickness of the CH filter 12 formed with the slit 122 is preferably 1 mm or more in order to secure predetermined strength. Furthermore, a non-wrapped filter that does not use material paper may be used as the CH filter. Additionally, in a filter having a circumference wrapped with formed paper along with a CH filter, existing filters such as a charcoal filter and a tow-embedded capsule filter can be suitably combined in addition to the acetate filter.

#### Reference Signs List

#### [0038]

1	cigarette (tobacco product)
11	tobacco rod
12	center hole (CH) filter
13	acetate filter
14	formed paper
15	tip paper
16	powder ball (seasoning source)
16a	powder
121	through hole
122	slit
141	cut
142	adhesive
151	cut
152	air supply unit (perforation)

153 adhesive

## Claims

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1. A filter for a tobacco product provided with a through hole along the axial direction, comprising a slit on a circumference of the filter along a circumferential direction, wherein a cross-sectional area of the through hole is changed by twisting both sides in the axial direction of the filter in relatively opposite directions along the circumferential direction with the slit as a boundary. 10
2. A tobacco product comprising: 15
- a filter provided with a through hole along an axial direction, the filter including a slit on a circumference of the filter along a circumferential direction, wherein a cross-sectional area of the through hole is changed by twisting both sides in the axial direction of the filter in relatively opposite directions along the circumferential direction with the slit as a boundary; 20
- tip paper that wraps at least a part of the filter; 25
- and
- a tobacco rod including shredded tobacco and connected to the filter through the tip paper.
3. The tobacco product according to claim 2, wherein the tip paper has a cut or a slit along the circumferential direction of the tobacco product, a portion on the tobacco rod side with respect to the cut or the slit is connected to a portion on the tobacco rod side with respect to the slit in the filter, and a portion on a mouthpiece side with respect to the cut or the slit in the tip paper is connected to a portion on the mouthpiece side with respect to the slit in the filter. 30 35
4. The tobacco product according to claim 2 or 3, wherein the tip paper has a perforation on the mouthpiece side with respect to the slit of the filter. 40
5. The tobacco product according to any one of claims 2 to 4, wherein a seasoning source containing a taste component or a flavor component is held on the tobacco rod side with respect to the slit. 45

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FIG. 1

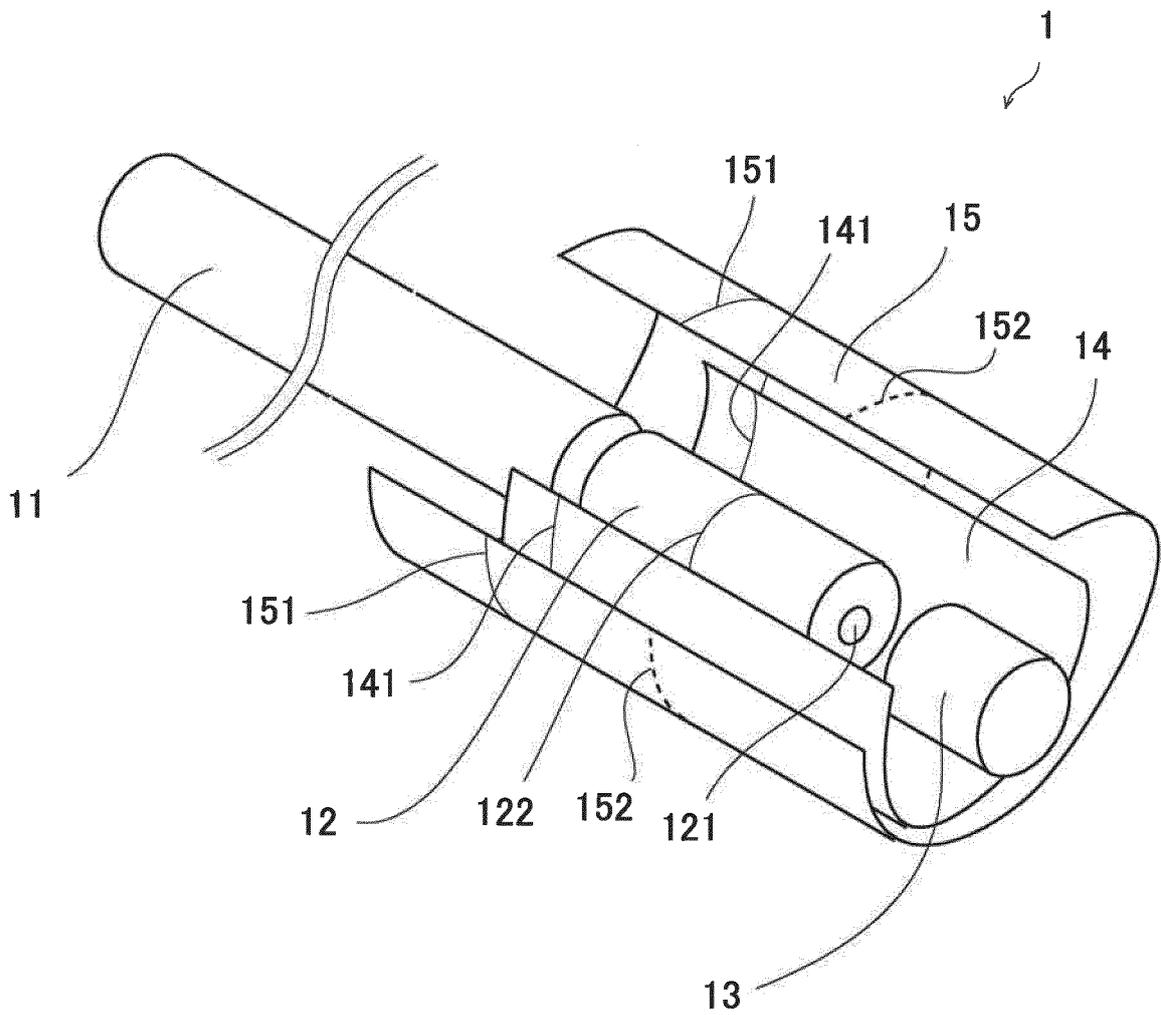


FIG. 2

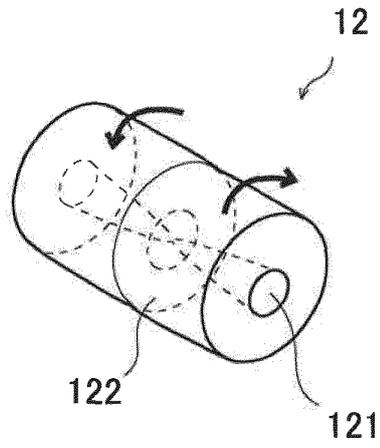


FIG. 3

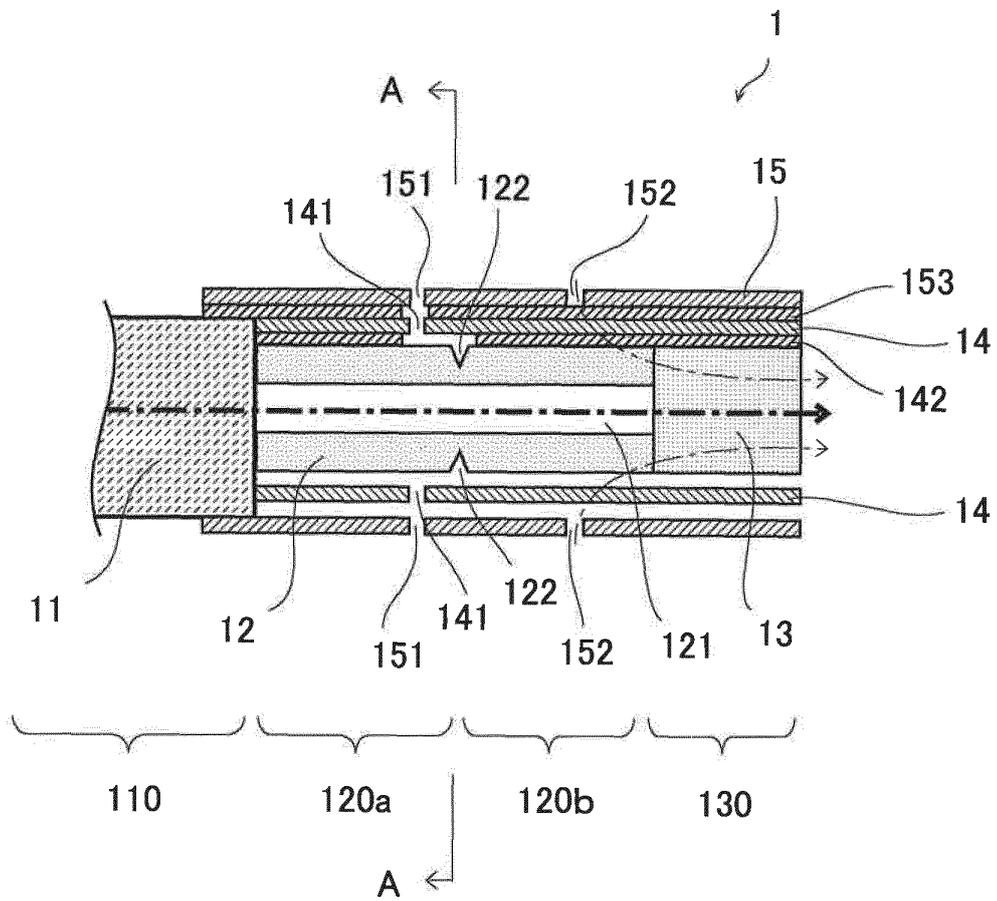


FIG. 4

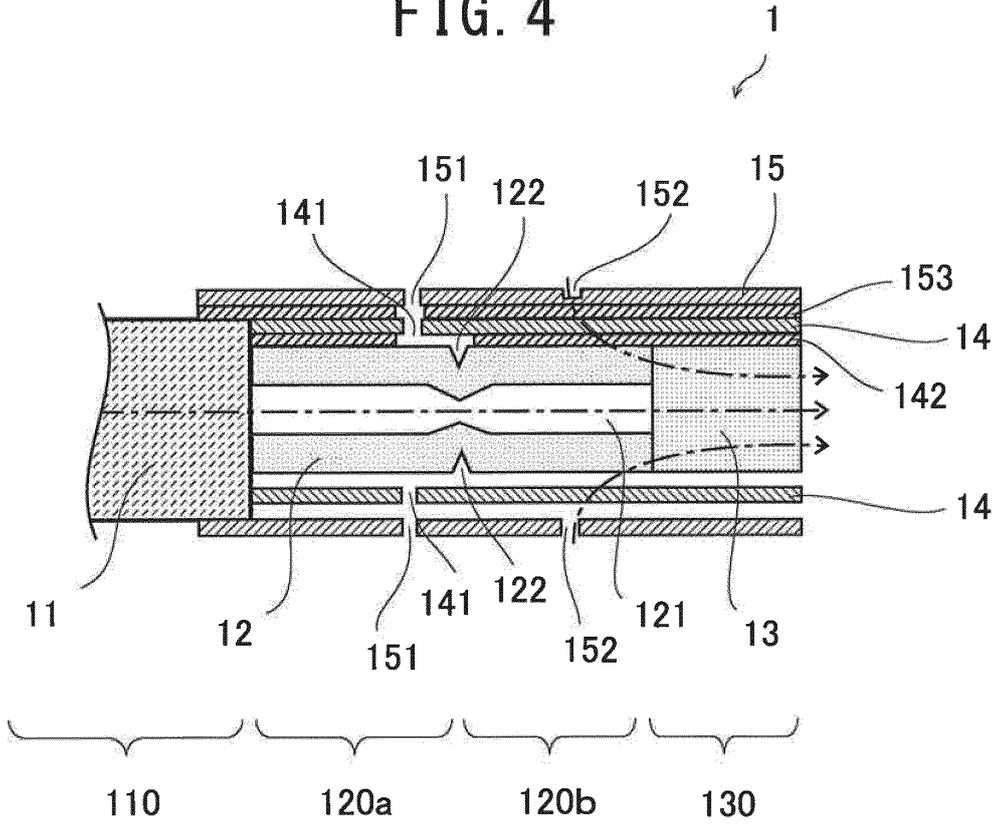


FIG. 5

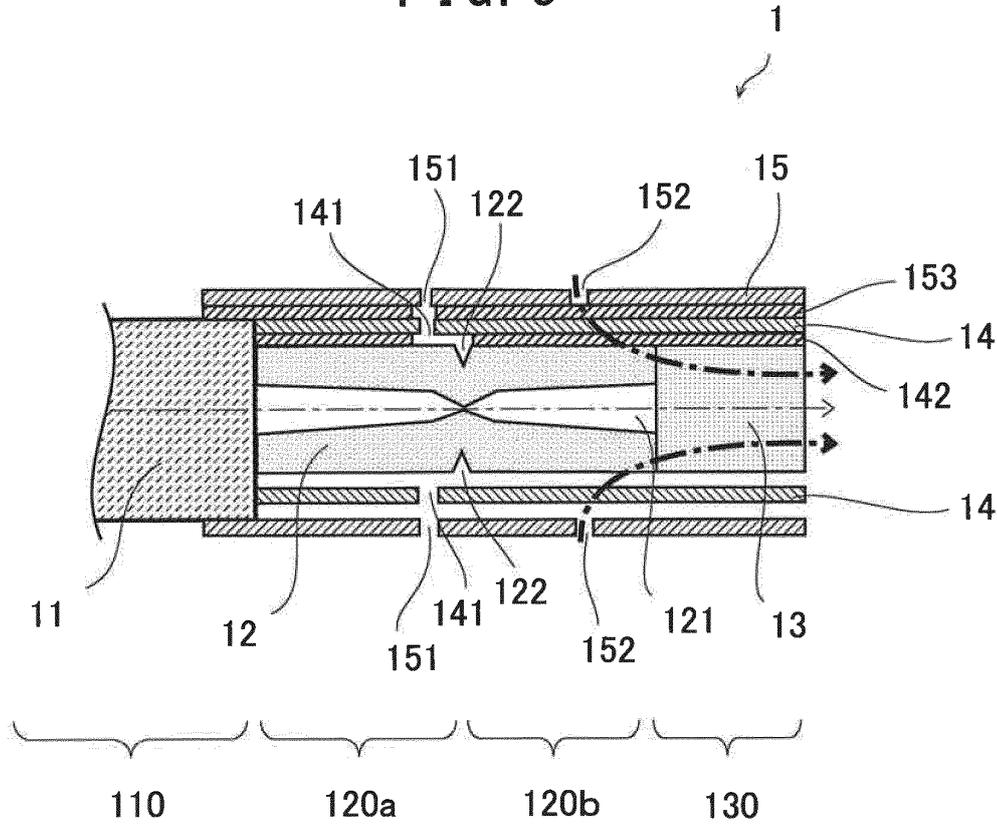


FIG. 6

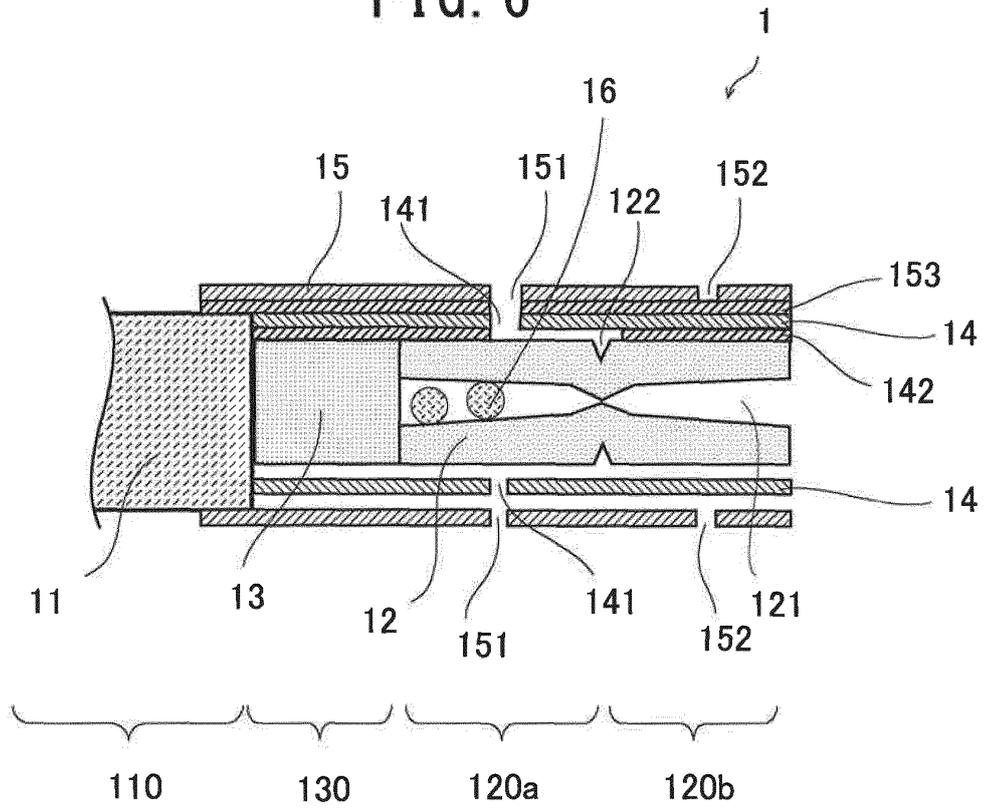


FIG. 7

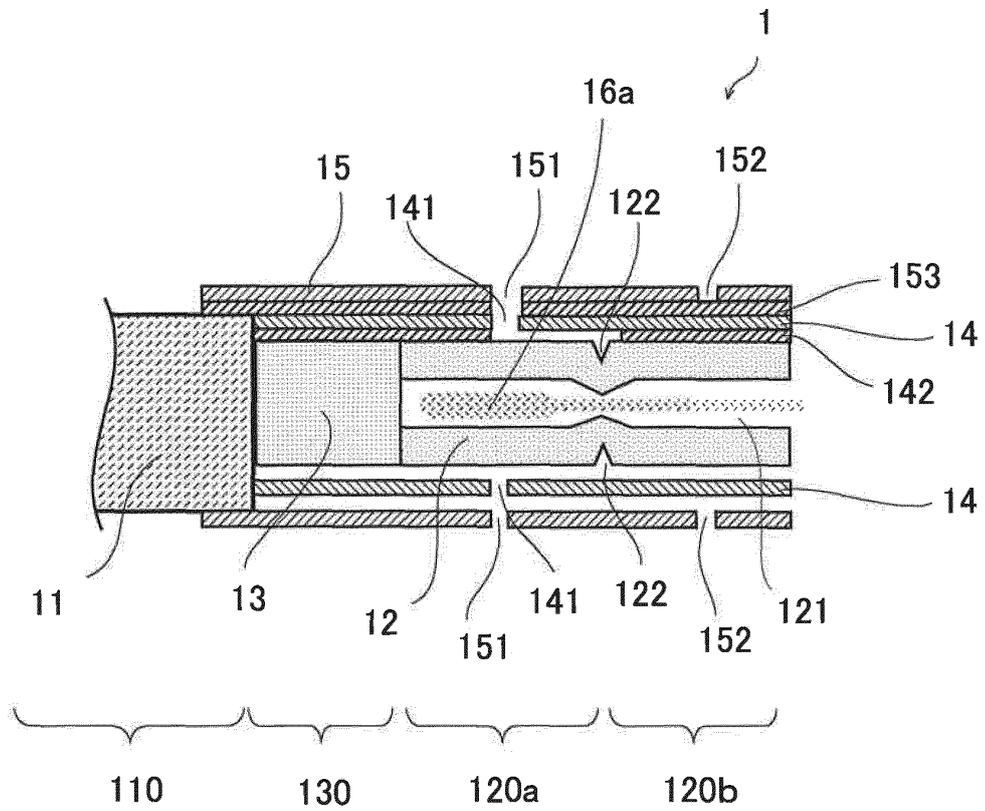


FIG. 8

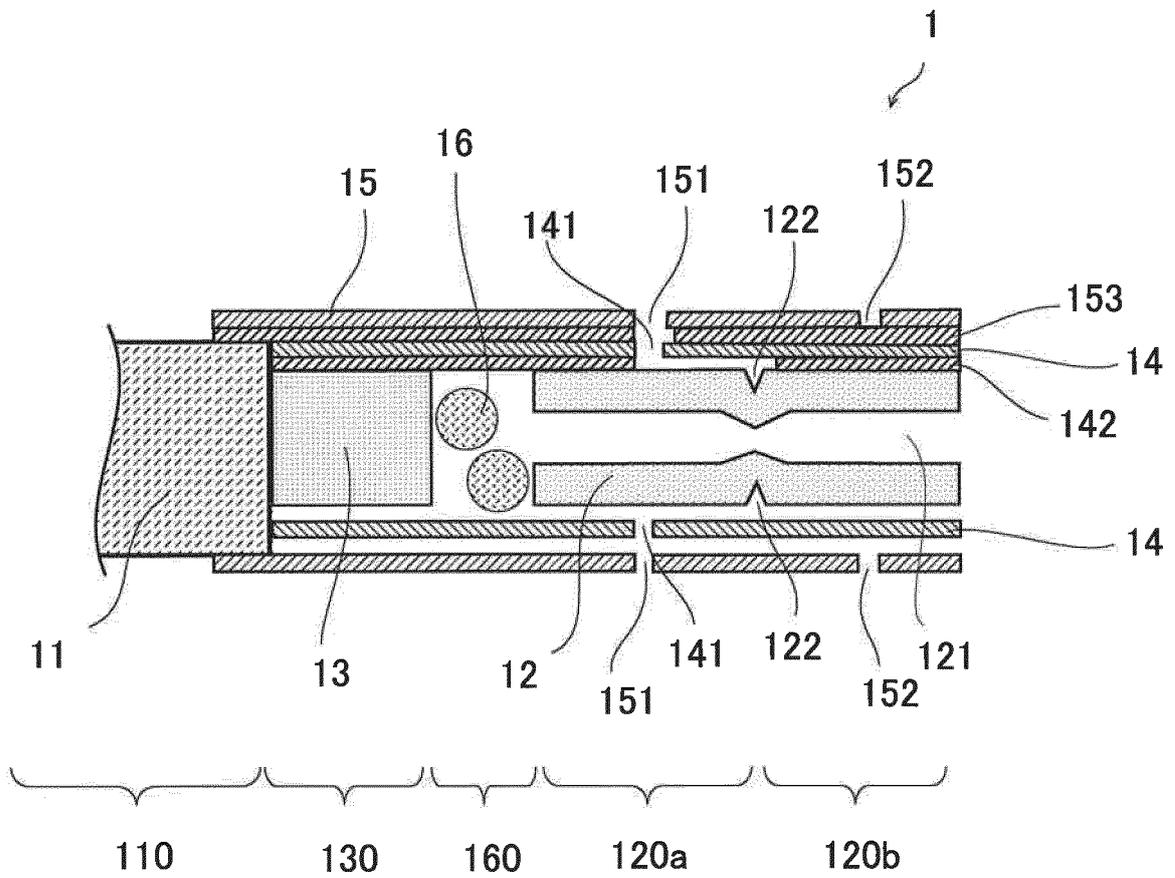


FIG. 9

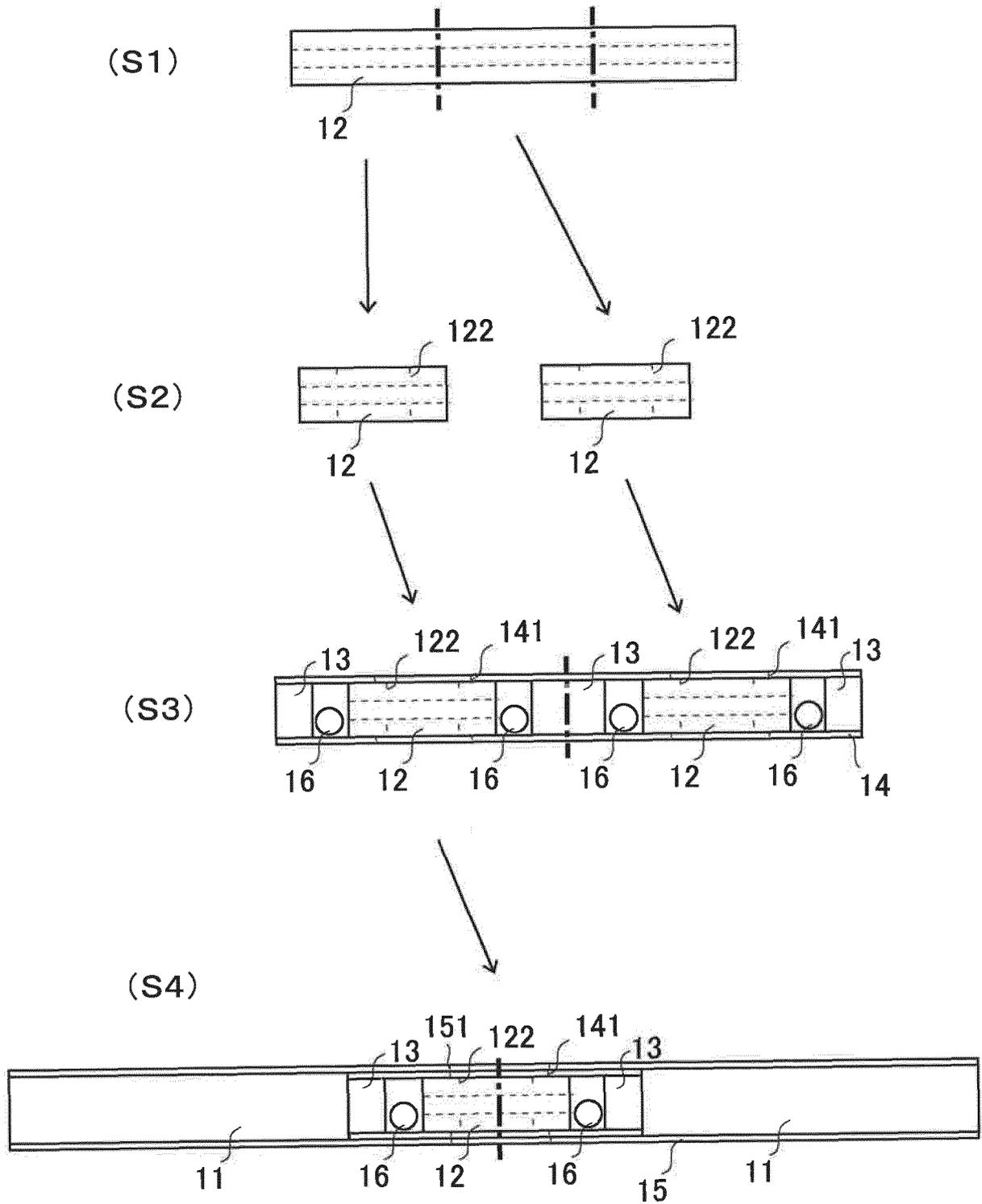


FIG. 10

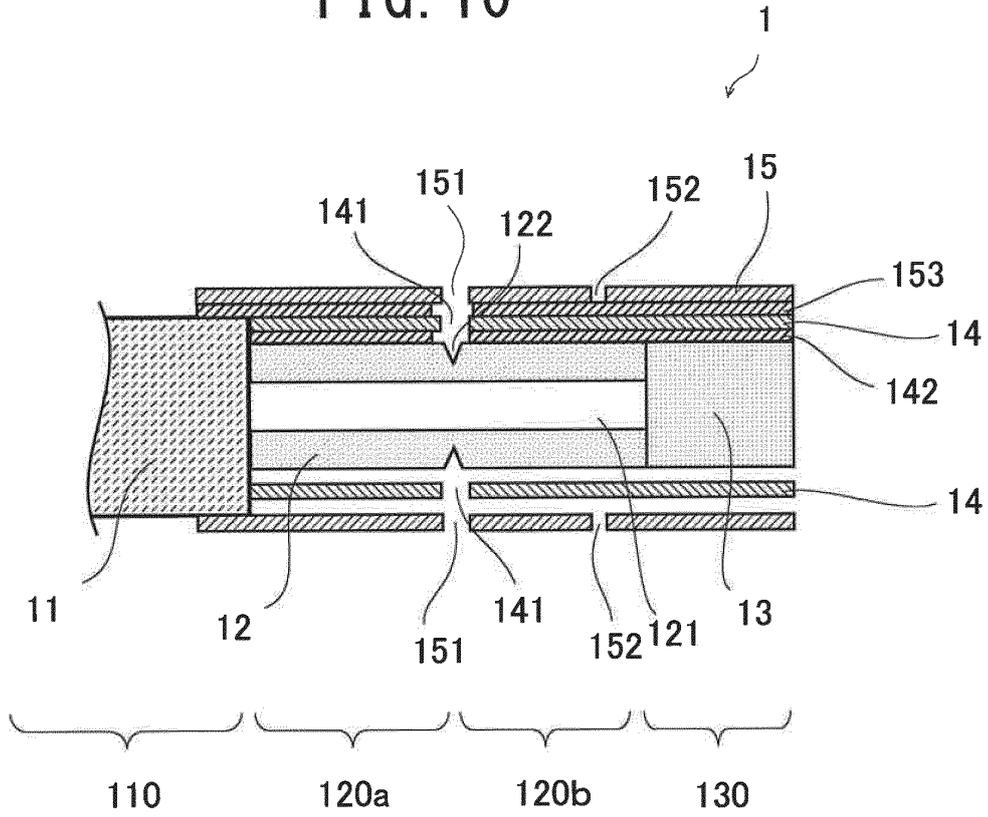
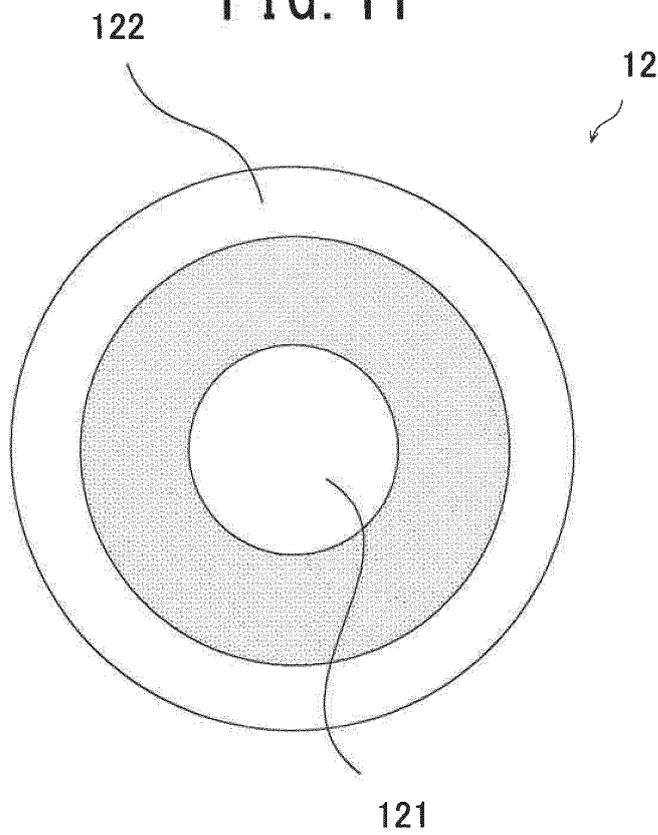


FIG. 11



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2016/074041

5	A. CLASSIFICATION OF SUBJECT MATTER A24D3/04(2006.01) i	
	According to International Patent Classification (IPC) or to both national classification and IPC	
10	B. FIELDS SEARCHED	
	Minimum documentation searched (classification system followed by classification symbols) A24D3/04	
15	Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2016 Kokai Jitsuyo Shinan Koho 1971-2016 Toroku Jitsuyo Shinan Koho 1994-2016	
	Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)	
20	C. DOCUMENTS CONSIDERED TO BE RELEVANT	
	Category*	Citation of document, with indication, where appropriate, of the relevant passages
25	Y	JP 8-322538 A (Japan Tobacco Inc.), 10 December 1996 (10.12.1996), paragraphs [0043] to [0045]; fig. 11 to 14 (Family: none)
30	Y	JP 49-067770 A (Fahir, Abdellah Ahmed), 01 July 1974 (01.07.1974), fig. 2 & GB 1446472 A fig. 2 & DE 2344182 A & BE 803922 A & BE 803922 A1 & CA 998309 A & IT 1005116 B
35		Relevant to claim No. 1-5  1-5
40	<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.	
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50	Date of the actual completion of the international search 13 September 2016 (13.09.16)	Date of mailing of the international search report 27 September 2016 (27.09.16)
55	Name and mailing address of the ISA/ Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	Authorized officer  Telephone No.

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**Patent documents cited in the description**

- US 3428050 A [0003]
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