



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

(43) Date of publication:
22.05.2024 Bulletin 2024/21

(51) International Patent Classification (IPC):
A24F 40/40^(2020.01)

(21) Application number: **21950136.8**

(52) Cooperative Patent Classification (CPC):
A24F 40/40; A24F 40/10; A24F 40/70

(22) Date of filing: **14.07.2021**

(86) International application number:
PCT/JP2021/026428

(87) International publication number:
WO 2023/286195 (19.01.2023 Gazette 2023/03)

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

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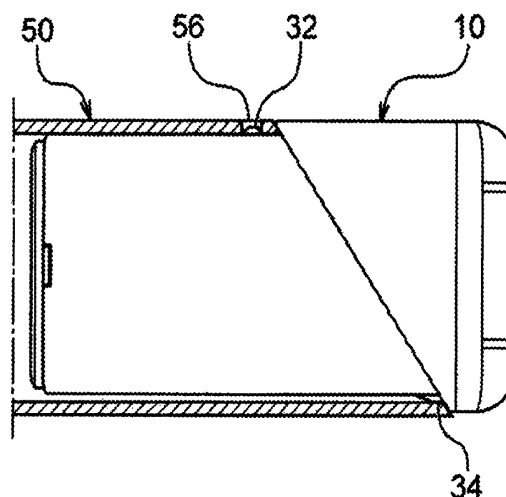
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(54) **FLAVOR SUCTION APPARATUS AND METHOD FOR MANUFACTURING SAME**

(57) A flavor inhaler comprises: a first component; and a second component detachably connected to the first component. One of the first and second components comprises a first engaging part and a second engaging part for engaging the other of the first and second components. The first engaging part engages the other of the

first and second components in a different way from the second engaging part. The first engaging part is provided on a first side in one of the first and second components and the second engaging part is provided on a second side opposed to the first side.

Fig. 4C



Description

TECHNICAL FIELD

[0001] The present invention relates to a flavor inhaler, and a method for manufacturing a flavor inhaler.

BACKGROUND ART

[0002] In the related art, flavor inhalers for inhaling, for example, flavor without combustion of a material are known. Such a flavor inhaler includes, for example, a chamber, and an atomization unit. The chamber accommodates an aerosol source. The atomization unit heats and atomizes the aerosol source accommodated in the chamber. With such a flavor inhaler, a cartridge provided with the chamber and the atomization unit may be detachably attached to a device body that is provided with a power supply or other components (see, for example, PTL 1).

CITATION LIST

PATENT LITERATURE

[0003] PTL 1: International Publication No. 2018/048813

SUMMARY OF INVENTION

TECHNICAL PROBLEM

[0004] Flavor inhalers made up of multiple components, such as one disclosed in PTL 1, employ any suitable engaging means for effecting mutual engagement of components. Examples of means employed for effecting mutual engagement of multiple components constituting such a flavor inhaler may include snap-fit engagement, engagement by means of magnets, engagement by means of screws, and engagement that utilizes sliding resistance due to tapering.

[0005] An object of the present invention is to provide a novel structure for effecting mutual engagement of components that constitute a flavor inhaler.

SOLUTION TO PROBLEM

[0006] According to a first aspect, a flavor inhaler is provided. The flavor inhaler includes a first component, and a second component to be connected to the first component in a manner that allows attachment/detachment of the second component.

[0007] One of the first component and the second component includes a first engagement part and a second engagement part that engage with an other one of the first component and the second component. The first engagement part engages with the other one of the first component and the second component in a manner dif-

ferent from the second engagement part. The first engagement part is disposed at a first side of the one of the first component and the second component, and the second engagement part is disposed at a second side opposite to the first side.

[0008] According to the first aspect, the first component and the second component are engaged with each other by means of the first engagement part and the second engagement part adapted for engagement in different manners. This makes it possible to engage the first component and the second component with each other by utilizing the respective characteristics of these engagement parts. As a result, inadvertent disengagement of the first component and the second component may be reduced, in comparison to a case in which the first component and the second component are engaged with each other only by means of an engagement part adapted for engagement in a single manner. Further, the first engagement part and the second engagement part are disposed at positions opposite to each other. This may reduce simultaneous releasing of the first engagement part and the second engagement part even under application of a localized force on the flavor inhaler.

[0009] According to a second aspect, in the first aspect, the first engagement part engages with the other one of the first component and the second component as the second engagement part engages with the other one of the first component and the second component.

[0010] According to the second aspect, as the user engages the second engagement part with the other one of the first component and the second component, the first engagement part can be also engaged with the other one of the first component and the second component. As a result, the first engagement part and the second engagement part, which are adapted for engagement in different manners, can be easily engaged with the other one of the first component and the second component. In other words, the user does not need to individually engage each of the first engagement part and the second engagement part with the other one of the first component and the second component. This allows for easy engagement of the first engagement part and the second engagement part with the other one of the first component and the second component.

[0011] According to a third aspect, in the first or second aspect, the first engagement part engages with the other one of the first component and the second component as the first engagement part is urged in a predetermined direction by the second engagement part.

[0012] According to the third aspect, the first engagement part can be engaged with the other one of the first component and the second component by means of the second engagement part. As a result, the first engagement part and the second engagement part, which are adapted for engagement in different manners, can be easily engaged with the other one of the first component and the second component.

[0013] According to a fourth aspect, in any one of the

first to third aspects, during connection of the second component and the first component to each other, the first engagement part engages with the other one of the first component and the second component after the second engagement part engages with the other one of the first component and the second component.

[0014] According to the fourth aspect, the engagement due to the first engagement part, and the engagement due to the second engagement part are allowed to occur with a time difference from each other.

[0015] According to a fifth aspect, in any one of the first to fourth aspects, the other one of the first component and the second component includes a recess, a notch, or a hole, and the first engagement part is a protrusion that engages with the recess, the notch, or the hole.

[0016] According to the fifth aspect, the user is able to feel the sensation created when the protrusion is attached into or detached from the recess or the hole. This allows the user to sense whether the first engagement part is in engagement with the other one of the first component and the second component.

[0017] According to a sixth aspect, in the fifth aspect, with the first component and the second component connected with each other, a portion of the second component exposed from the first component has a length along the first side that is greater than a length along the second side.

[0018] According to the sixth aspect, the second component has a length along the first side that is greater than a length than along the second side. This facilitates user's operation on the first side of the second component. As a result, if the second component is provided with the protrusion (first engagement part), the user is able to, by operating on the first side of the second component, easily disconnect the protrusion at the first side from the first component.

[0019] According to a seventh aspect, in the fifth or sixth aspect, the second component includes a surface-treated part having an increased friction. The surface-treated part is provided at a surface along the first side of a portion of the second component. The portion is a portion that, with the first component and the second component connected with each other, is exposed from the first component.

[0020] According to the seventh aspect, a force that the user applies to the second component when operating on the first side of the second component is readily transmitted to the second component. This allows the user to, if the second component is provided with the protrusion (first engagement part), easily disconnect the protrusion at the first side from the first component.

[0021] According to an eighth aspect, in any one of the first to seventh aspects, the second engagement part is a ridge having a tapered face, and upon engagement of the second engagement part with the other one of the first component and the second component, the second engagement part urges the first engagement part from the second side toward the first side.

[0022] According to the eighth aspect, if the first engagement part is a protrusion, the first engagement part can be urged toward a recess, a notch, or a hole in the other one of the first component and the second component to engage the first engagement part with the recess, the notch, or the hole. In this case, the first engagement part in the form of the protrusion may serve to reduce disconnection of the second component from the first component in the direction of attachment/detachment of the second component, and the second engagement part may serve to reduce looseness of the second component in a direction perpendicular to the direction of attachment/detachment.

[0023] According to a ninth aspect, in any one of the first to seventh aspects, the first component includes an opening capable of receiving the second component.

[0024] According to the ninth aspect, the first component can be inserted into the second component for mutual engagement between the first and second components.

[0025] According to a tenth aspect, in the ninth aspect, when viewed in a direction of attachment/detachment, the opening has an out-of-round shape to reduce rotation of the second component in a circumferential direction with respect to the direction of attachment/detachment.

[0026] According to the tenth aspect, the first component and the second component can be prevented from being displaced in their orientation in the circumferential direction. As a result, the first engagement part and the second engagement part are prevented from being displaced in the circumferential direction relative to the first component. This allows the first engagement part and the second engagement part to be easily engaged with the first component.

[0027] According to an eleventh aspect, in the ninth or tenth aspect, the opening is defined by an open end. The open end is inclined with respect to a plane perpendicular to a direction of attachment/detachment.

[0028] According to the eleventh aspect, the area of the opening can be increased in comparison to a case in which the open end is oriented perpendicularly to the direction of attachment/detachment. This helps to facilitate attachment of the first component and the second component to each other.

[0029] According to a twelfth aspect, in any one of the first to eleventh aspects, the second component is a mouthpiece.

[0030] According to the twelfth aspect, the mouthpiece can be engaged with the first component by means of the first engagement part and the second engagement part.

[0031] According to a thirteenth aspect, in any one of the first to twelfth aspects, the second component includes an atomization unit that atomizes an aerosol source.

[0032] According to the thirteenth aspect, the atomization unit can be engaged with the first component by means of the first engagement part and the second en-

gagement part.

[0033] According to a fourteenth aspect, a method for manufacturing a flavor inhaler is provided. The method for manufacturing a flavor inhaler includes a step of connecting a second component to a first component that constitutes a flavor inhaler. The step includes: engaging a second engagement part disposed at a second side of one of the first component and the second component, with an other one of the first component and the second component; and engaging a first engagement part disposed at a first side of the one of the first component and the second component opposite to the second side, with the other one of the first component and the second component in a manner different from the second engagement part.

[0034] According to the fourteenth aspect, the first component and the second component are engaged with each other by means of the first engagement part and the second engagement part adapted for engagement in different manners. This makes it possible to engage the first component and the second component with each other by utilizing the respective characteristics of these engagement parts. As a result, inadvertent disengagement of the first component and the second component may be reduced, in comparison to a case in which the first component and the second component are engaged with each other only by means of an engagement part adapted for engagement in a single manner. Further, the first engagement part and the second engagement part are disposed at positions opposite to each other. This may reduce simultaneous releasing of the first engagement part and the second engagement part even under application of a localized force on the flavor inhaler.

[0035] According to a fifteenth aspect, in the fourteenth aspect, the step includes, by engaging of the second engagement part with the other one of the first component and the second component, urging the first engagement part in a predetermined direction to engage the first engagement part with the other one of the first component and the second component.

[0036] According to the fifteenth aspect, the first engagement part can be engaged with the other one of the first component and the second component by means of the second engagement part. As a result, the first engagement part and the second engagement part, which are adapted for engagement in different manners, can be easily engaged with the other one of the first component and the second component.

BRIEF DESCRIPTION OF DRAWINGS

[0037]

[Fig. 1] Fig. 1 is a general perspective view of a flavor inhaler according to an embodiment of the present invention.

[Fig. 2A] Fig. 2A is a side view of a first component illustrated in Fig. 1.

[Fig. 2B] Fig. 2B is a partially enlarged perspective view of the first component.

[Fig. 3A] Fig. 3A is a side view of a second component illustrated in Fig. 1.

[Fig. 3B] Fig. 3B is an enlarged view of a first engagement part.

[Fig. 3C] Fig. 3C is an enlarged view of a second engagement part.

[Fig. 4A] Fig. 4A illustrates a method for manufacturing a flavor inhaler.

[Fig. 4B] Fig. 4B illustrates the method for manufacturing a flavor inhaler.

[Fig. 4C] Fig. 4C illustrates the method for manufacturing a flavor inhaler.

[Fig. 5] Fig. 5 schematically illustrates a flavor inhaler according to another embodiment.

[Fig. 6] Fig. 6 schematically illustrates a flavor inhaler according to another embodiment.

DESCRIPTION OF EMBODIMENTS

[0038] Embodiments of the present invention are described below with reference to the drawings. In the descriptions below, identical or corresponding structural elements are designated by the same reference signs to omit repetitive descriptions of such structural elements.

[0039] Fig. 1 is a general perspective view of a flavor inhaler according to an embodiment of the present invention. As illustrated in Fig. 1, a flavor inhaler 100 includes a first component 50, and a second component 10 to be detachably connected to the first component 50. Fig. 1 depicts the first component 50 and the second component 10 in their mutually engaged state. According to the embodiment, the first component 50 includes a battery 52, and constitutes a reusable power supply unit. The first component 50 may include a control board such as a PCB for controlling the power of the battery 52. According to the embodiment, the second component 10 constitutes a cartridge. The battery 52 of the first component 50 is configured to supply power to the second component 10. The second component 10 has a vent 12 at its distal end. An aerosol generated in the flavor inhaler 100 can be inhaled by a user through the vent 12. That is, according to the embodiment, the second component 10 also serves as a mouthpiece.

[0040] Fig. 2A is a side view of the first component 50 illustrated in Fig. 1. Fig. 2B is a partially enlarged perspective view of the first component 50. The first component 50 includes a housing 53 that accommodates the battery 52 or other components illustrated in Fig. 1. As illustrated in Fig. 2B, the first component 50 (housing 53) has an opening 54 capable of receiving the second component 10. As illustrated in Fig. 1, this allows the second component 10 to be inserted into the first component 50 to effect mutual engagement of these components. The opening 54 is provided at one end of the housing 53. The housing 53 is closed at the other end. The housing 53 of the first component 50 is thus generally in the form of a

tubular body with a bottom.

[0041] The first component 50 has a first side 62, and a second side 64 opposite to the first side 62. The second component 10 is to be attached to or detached from the first component 50 in a direction in which the first side 62 and the second side 64 extend. That is, the left-right direction in Fig. 2 corresponds to the direction of attachment/detachment with respect to the first component 50. As used herein, the term "direction of attachment/detachment" also corresponds to the longitudinal direction of the flavor inhaler 100, a direction in which the first component 50 and the second component 10 are coupled or adjacent to each other, or a direction in which the second component 10 is to be inserted into the opening 54. Accordingly, the first side 62 and the second side 64 are spaced apart from each other in a direction perpendicular to the direction of attachment/detachment.

[0042] The opening 54 is defined by an open end 54a of the first component 50. As illustrated in Figs. 2A and 2B, the open end 54a is preferably inclined with respect to a plane perpendicular to the direction of attachment/detachment. As a result, the area of the opening 54 can be increased in comparison to a case in which the open end 54a is oriented perpendicularly to the direction of attachment/detachment. This helps to facilitate attachment of the first component 50 and the second component 10 to each other. More specifically, insertion of the second component 10 into the opening 54 of the first component 50 can be facilitated. Due to the open end 54a being inclined with respect to the plane perpendicular to the direction of attachment/detachment, the first side 62 of the housing 53 has a length in the direction of attachment/detachment that is less than the length of the second side 64 of the housing 53 in the direction of attachment/detachment.

[0043] The opening 54 preferably has an out-of-round shape when viewed in the direction of attachment/detachment. This makes it possible to, upon insertion of the second component 10 into the opening 54, reduce rotation of the second component 10 in a circumferential direction with respect to the direction of attachment/detachment. Consequently, the first component 50 and the second component 10 are not displaced in orientation in the circumferential direction, which allows for easy engagement between the first component 50 and the second component 10. According to the embodiment, as illustrated in Fig. 2B, the opening 54 has a substantially rectangular shape when viewed in the direction of attachment/detachment. The opening 54, however, may have any shape without being limited to the above-mentioned shape.

[0044] As illustrated in Fig. 2B, the first component 50 includes a hole 56 with which a first engagement part 32 of the second component 10, which will be described later, is to engage. According to the embodiment, the hole 56 extends through a portion of the first side 62 between the outer and inner faces of the housing 53. This, however, is not intended to be limiting. Alternatively,

the first component 50 may have a recess or a notch with which the first engagement part 32 of the second component 10, which will be described later, is to engage. In this case, for example, the inner face at the first side 62 of the housing 53 may be provided with a recess or a notch. According to the embodiment, an inner face 58 at the second side 64 of the housing 53 may be flat.

[0045] Fig. 3A is a side view of the second component 10 illustrated in Fig. 1. As represented by dashed lines in Fig. 3A, the second component 10 includes an atomization unit 16, and an aerosol flow path 14 that are disposed inside the second component 10. The atomization unit 16 includes, for example, components such as an aerosol source, and a heater for atomizing the aerosol source. The atomization unit 16 atomizes the aerosol source to generate an aerosol. The aerosol flow path 14 communicates with the atomization unit 16 at one end, and communicates with the vent 12 at the other end. An aerosol generated in the atomization unit 16 may be thus supplied to the vent 12 through the aerosol flow path 14.

[0046] The second component 10 includes a first portion 10a, and a second portion 10b. With the second component 10 attached to the first component 50 as illustrated in Fig. 1, the first portion 10a is housed inside the first component 50, and the second portion 10b is exposed from the first component 50. The second component 10 has a first side 22, and a second side 24 opposite to the first side 22. With the first component 50 and the second component 10 connected with each other, the first side 22 and the second side 24 of the second component 10 are respectively located at the first side 62 and the second side 64 of the first component 50. The second component 10 may include a stopper 18 that, upon attachment of the second component 10 to the first component 50, abuts the open end 54a of the first component 50. The stopper 18 is in the form of an inclined face inclined at an orientation similar to that of the open end 54a. With the location of the stopper 18 as the boundary, the second portion 10b has a width and a thickness respectively greater than the width and the thickness of the first portion 10a. The stopper 18 is capable of reducing excessive entry of the second component 10 into the first component 50 when the second component 10 is attached to the first component 50.

[0047] According to the embodiment, the second component 10 includes the first engagement part 32 and a second engagement part 34 that engage with the first component 50. In this regard, the first engagement part 32 engages with the first component 50 in a manner different from the second engagement part 34. This makes it possible to engage the first component 50 and the second component 10 with each other by utilizing the respective characteristics of these engagement parts. As a result, inadvertent disengagement of the first component 50 and the second component 10 may be reduced, in comparison to a case in which the first component 50 and the second component 10 are engaged with each other only by means of an engagement part adapted for

engagement in a single manner. As illustrated in Fig. 3A, the first engagement part 32 is preferably disposed at the first side 22 of the second component 10, and the second engagement part 34 is preferably disposed at the second side 24. This may reduce simultaneous releasing of the first engagement part 32 and the second engagement part 34 even under application of a localized force on the flavor inhaler 100.

[0048] The first engagement part 32 and the second engagement part 34 may have any engagement structure that allows these engagement parts to engage in mutually different manners. For example, the first engagement part 32 and the second engagement part 34 may have an engagement structure such as an engagement structure utilizing magnetic force, an engagement structure utilizing friction, or an engagement structure utilizing locking engagement (e.g., a snap-fit).

[0049] Fig. 3B is an enlarged view of the first engagement part 32. As illustrated in Fig. 3B, according to the embodiment, the first engagement part 32 may be a protrusion that engages with the hole 56 of the first component 50 illustrated in Fig. 2B. If the first engagement part 32 is a protrusion, the user is able to feel the sensation created when the protrusion is attached into or detached from the hole 56 of the first component 50. This allows the user to sense whether the first engagement part 32 is in engagement with the first component 50.

[0050] Fig. 3C is an enlarged view of the second engagement part 34. As illustrated in Fig. 3C, according to the embodiment, the second engagement part 34 may be a ridge having a tapered face 34a. The tapered face 34a is inclined such that the width of the second component 10 increases as the tapered face 34a extends from the first portion 10a of the second component 10 toward the second portion 10b. In other words, the presence of the tapered face 34a allows the second engagement part 34 to, upon engagement of the second engagement part 34 with the first component 50, urge the first engagement part 32 from the second side 24 toward the first side 22. The first engagement part 32 can be thus urged into the hole 56 of the first component 50 for engagement with the hole 56. In this case, the first engagement part 32 in the form of the protrusion may serve to reduce disconnection of the second component 10 from the first component 50 in the direction of attachment/detachment of the second component 10, and the second engagement part 34 may serve to reduce looseness of the second component 10 in a direction perpendicular to the direction of attachment/detachment. Further, during attachment/detachment of the second component 10, an increase in the friction generated at the first engagement part 32 can be moderated. This makes it possible to reduce wear of or damage to the first engagement part 32. The second engagement part 34 is not necessarily a ridge having the tapered face 34a. The second engagement part 34 to be used may be chosen from among any suitable structures capable of urging the first engagement part 32 toward the first component 50. More spe-

cifically, the second engagement part 34 may be in the form of, for example, a silicone, spring, or other elastic structure.

[0051] As illustrated in Fig. 3A, with the first component 50 and the second component 10 connected with each other, a portion of the second component 10 exposed from the first component 50, that is, the second portion 10b, preferably has a length along the first side 22 that is greater than a length along the second side 24. That is, as illustrated in Fig. 3A, the second portion 10b has a length L1 along the first side 22 that is greater than a length L2 along the second side 24 of the second portion 10b. This facilitates user's operation on the first side 22 of the second portion 10b. The user is thus able to easily disconnect the first engagement part 32 at the first side 22 from the first component 50 by operating on the first side 22 of the second portion 10b. More specifically, the user is able to easily disengage the first engagement part 32 from the first component 50 by pushing on the first side 22 of the second component 10 in a direction that causes the first engagement part 32 to disconnect from the first component 50.

[0052] Further, the second component 10 includes a surface-treated part 26 having an increased friction. The surface-treated part 26 is provided at a surface along the first side 22 of the second portion 10b, which is a portion of the second component 10 that, with the first component 50 and the second component 10 connected with each other, is exposed from the first component 50. Examples of the surface-treated part 26 may include a part subjected to any suitable surface treatment for increasing friction, such as blasting, roughening, or rubber coating. As a result, a force that the user applies to the second component 10 when operating on the first side 22 of the second component 10 is readily transmitted to the second component 10. This allows the user to easily disconnect the first engagement part 32 at the first side 22 from the first component 50.

[0053] Reference is now made to a method for manufacturing the flavor inhaler 100. Figs. 4A to 4C illustrate the method for manufacturing the flavor inhaler 100. More specifically, Figs. 4A to 4C illustrate a procedure for attaching the first component 50 and the second component 10 to each other. First, the second component 10 is connected to the first component 50 constituting the flavor inhaler 100. More specifically, the first portion 10a of the second component 10 is inserted into the opening 54 of the first component 50. As illustrated in Fig. 4A, the second component 10 is inserted into the opening 54 of the first component 50 in the direction of attachment/detachment denoted by d1.

[0054] Subsequently, as the second component 10 is inserted into the first component 50 in the direction of attachment/detachment d1, the second engagement part 34 engages with the first component 50. More specifically, the tapered face 34a of the second engagement part 34 illustrated in Fig. 3C makes contact with the inner face 58 of the housing 53 of the first component 50 illustrated

in Fig. 2B. After the tapered face 34a makes contact with the inner face 58 of the housing 53, further pushing the second component 10 into the first component 50 in the direction of attachment/detachment d1 causes further engagement of the second engagement part 34 with the first component 50. As a result, due to the second engagement part 34, the entire second component 10 including the first engagement part 32 is urged in a predetermined direction. More specifically, as illustrated in Fig. 4B, the first engagement part 32 is urged in a direction d2 (direction pointing from the second side 24 toward the first side 22), which is perpendicular to the direction of attachment/detachment d1. This causes the first engagement part 32 in the form of the protrusion to fit and engage in the hole 56 as illustrated in Fig. 4C.

[0055] In the process illustrated in Figs. 4A to 4C, during connection of the second component 10 and the first component 50 to each other, the first engagement part 32 engages with the first component 50 after the second engagement part 34 engages with the first component 50. Consequently, the engagement due to the first engagement part 32, and the engagement due to the second engagement part 34 are allowed to occur with a time difference from each other. According to the process illustrated in Figs. 4A to 4C, engagement of the second engagement part 34 with the first component 50 allows the first engagement part 32 to engage with the first component 50. As a result, the first engagement part 32 and the second engagement part 34, which are adapted for engagement in different manners, can be easily engaged with the first component 50.

[0056] Statedly differently, in the process illustrated in Figs. 4A to 4C, the first engagement part 32 engages with the first component 50 as the second engagement part 34 engages with the first component 50. As the user engages the second engagement part 34 with the first component 50, the first engagement part 32 can be also engaged with the first component 50. As a result, the first engagement part 32 and the second engagement part 34, which are adapted for engagement in different manners, can be easily engaged with the first component 50. That is, the user does not need to individually engage each of the first engagement part 32 and the second engagement part 34 with the first component 50. This allows for easy engagement of the first engagement part 32 and the second engagement part 34 with the first component 50.

[0057] Fig. 5 schematically illustrates the flavor inhaler 100 according to another embodiment. In Fig. 5, the first component 50 is illustrated in cross-sectional view, and the second component 10 is illustrated in side view, with the flavor inhaler 100 illustrated in a state prior to connection of the second component 10 to the first component 50. In the example illustrated in Fig. 5, a first engagement part 35 of the second component 10 is a recess, and the first component 50 has a protrusion 59 corresponding to the recess. As the second component 10 is inserted into the first component 50 in the direction

of attachment/detachment d1, the second engagement part 34 causes the first engagement part 32 to be urged in the direction d2 (see Fig. 4B) perpendicular to the direction of attachment/detachment d1. This causes the protrusion 59 to fit and engage in the first engagement part 35 in the form of the recess. As illustrated in Fig. 5, the flavor inhaler 100 according to the embodiment may employ the first engagement part 35 and the second engagement part 34 in various forms.

[0058] In the examples so far described, the second component 10 includes the first engagement part 32 (first engagement part 35) and the second engagement part 34. This, however, is not intended to be limiting. According to the embodiments, one of the first component 50 and the second component 10 may include a first engagement part and a second engagement part that engage with the other one of the first component 50 and the second component 10. That is, the first component 50 may include at least one of the first engagement part and the second engagement part. In this case, the second component 10 may include a part to be engaged with the first engagement part or the second engagement part. Fig. 6 schematically illustrates the flavor inhaler 100 according to another embodiment. In Fig. 6, the first component 50 is illustrated in cross-sectional view, and the second component 10 is illustrated in side view, with the flavor inhaler 100 illustrated in a state prior to connection of the second component 10 to the first component 50.

[0059] The flavor inhaler 100 illustrated in Fig. 6 differs from the flavor inhaler 100 illustrated in Figs. 1 to 4C in the following respects: the second component 10 is not provided with the second engagement part 34, and instead the first component 50 is provided with a second engagement part 57; and the location of the hole 56 (corresponding to an example of the first engagement part) of the first component 50. In the example illustrated in Fig. 6, the hole 56 of the first component 50 corresponds to the first engagement part, and a protrusion 33 of the second component 10 fits into the hole 56. As illustrated in Fig. 6, the first component 50 includes the second engagement part 57 on the inner face 58 at the second side 64 (see Fig. 2A). The second engagement part 57 may be a ridge having a tapered face 57a. The tapered face 57a is inclined such that the width of the first component 50 decreases with increasing distance from the opening 54. In other words, the presence of the tapered face 57a allows the second engagement part 57 to, upon engagement of the second engagement part 57 with the first component 50, urge the protrusion 33 from the second side 24 toward the first side 22. This allows the protrusion 33 to be urged into the hole 56 of the first component 50 for engagement with the hole 56.

[0060] As illustrated in Fig. 6, the hole 56 of the second component 10 is preferably disposed at a position substantially aligned with the second engagement part 57 in the direction of attachment/detachment d1. As a result, when the second engagement part 57 urges the protrusion 33 from the second side 24 toward the first side 22,

the second component 10 undergoes a relatively large displacement in the direction d2 (see Fig. 4B) at the position corresponding to the second engagement part 57. The protrusion 33 can be thus urged into the hole 56 of the first component 50 for reliable engagement with the hole 56. As described above, the second component 10 may include the first engagement part (hole 56) and the second engagement part 57.

[0061] Although embodiments of the present invention have been described above, the invention is not intended to be limited to the embodiments presented above but capable of various modifications within the technical scope as set forth in the claims, the specification, and the drawings. Any shapes or materials not directly described in the specification and the drawings are also considered to fall within the technical scope of the present invention insofar as such shapes or materials provide the effects/advantages of the invention.

REFERENCE SIGNS LIST

[0062]

10	second component
16	atomization unit
22	first side
24	second side
26	surface-treated part
32, 35	first engagement part
34, 57	second engagement part
34a	tapered face
50	first component
54	opening
54a	open end
56	hole
100	flavor inhaler
d1	direction of attachment/detachment

Claims

1. A flavor inhaler comprising:

a first component; and
a second component to be connected to the first component in a manner that allows attachment/detachment of the second component, wherein one of the first component and the second component includes a first engagement part and a second engagement part that engage with an other one of the first component and the second component, wherein the first engagement part engages with the other one of the first component and the second component in a manner different from the second engagement part, and wherein the first engagement part is disposed at a first side of the one of the first component

and the second component, and the second engagement part is disposed at a second side opposite to the first side.

2. The flavor inhaler according to claim 1, wherein the first engagement part engages with the other one of the first component and the second component as the second engagement part engages with the other one of the first component and the second component.
3. The flavor inhaler according to claim 1 or 2, wherein the first engagement part engages with the other one of the first component and the second component as the first engagement part is urged in a predetermined direction by the second engagement part.
4. The flavor inhaler according to any one of claims 1 to 3, wherein during connection of the second component and the first component to each other, the first engagement part engages with the other one of the first component and the second component after the second engagement part engages with the other one of the first component and the second component.
5. The flavor inhaler according to any one of claims 1 to 4, wherein the other one of the first component and the second component includes a recess, a notch, or a hole, and wherein the first engagement part is a protrusion that engages with the recess, the notch, or the hole.
6. The flavor inhaler according to claim 5, wherein with the first component and the second component connected with each other, a portion of the second component exposed from the first component has a length along the first side that is greater than a length along the second side.
7. The flavor inhaler according to claim 5 or 6, wherein the second component includes a surface-treated part having an increased friction, the surface-treated part being provided at a surface along the first side of a portion of the second component, the portion being a portion that, with the first component and the second component connected with each other, is exposed from the first component.
8. The flavor inhaler according to any one of claims 1 to 7, wherein the second engagement part is a ridge having a tapered face, and wherein upon engagement of the second engagement part with the other one of the first com-

ponent and the second component, the second engagement part urges the first engagement part from the second side toward the first side.

9. The flavor inhaler according to any one of claims 1 to 8,
wherein the first component includes an opening capable of receiving the second component. 5
10. The flavor inhaler according to claim 9,
wherein when viewed in a direction of attachment/detachment, the opening has an out-of-round shape to reduce rotation of the second component in a circumferential direction with respect to the direction of attachment/detachment. 10
15
11. The flavor inhaler according to claim 9 or 10,
wherein the opening is defined by an open end, the open end being inclined with respect to a plane perpendicular to a direction of attachment/detachment. 20
12. The flavor inhaler according to any one of claims 1 to 11,
wherein the second component is a mouthpiece. 25
13. The flavor inhaler according to any one of claims 1 to 12,
wherein the second component includes an atomization unit that atomizes an aerosol source. 30
14. A method for manufacturing a flavor inhaler, the method comprising

a step of connecting a second component to a first component that constitutes a flavor inhaler, wherein the step includes 35

engaging a second engagement part disposed at a second side of one of the first component and the second component, with an other one of the first component and the second component, and 40
engaging a first engagement part disposed at a first side of the one of the first component and the second component opposite to the second side, with the other one of the first component and the second component in a manner different from the second engagement part. 45
50
15. The method according to claim 14 for manufacturing a flavor inhaler,
wherein the step includes, by engaging of the second engagement part with the other one of the first component and the second component, urging the first engagement part in a predetermined direction to engage the first engagement part with the other one of the first component and the second component. 55

Fig. 1

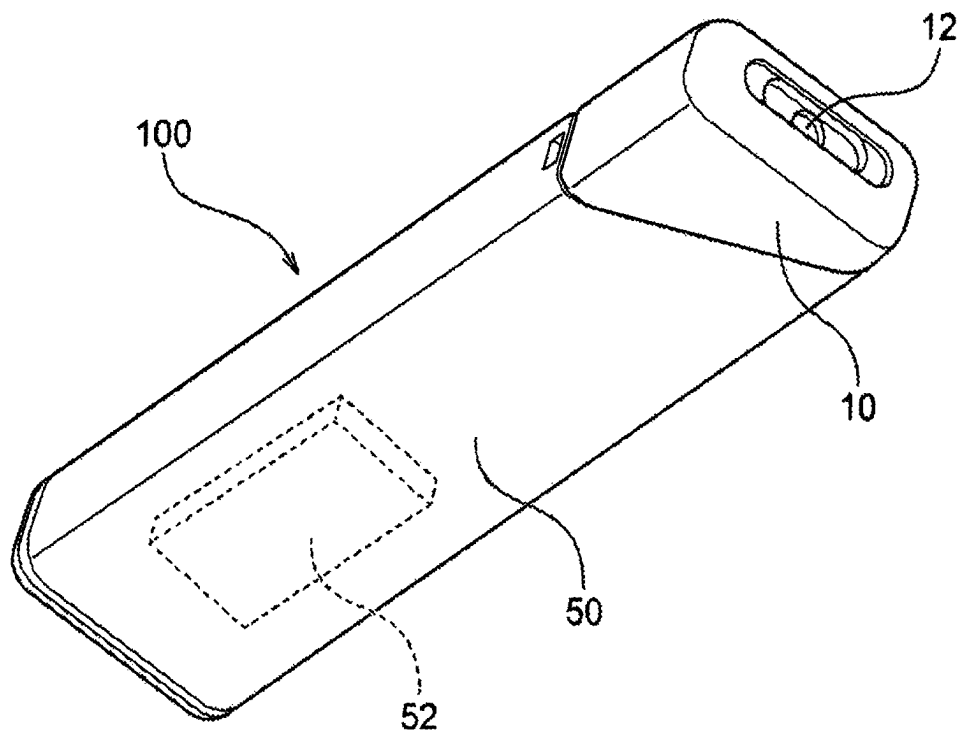


Fig. 2A

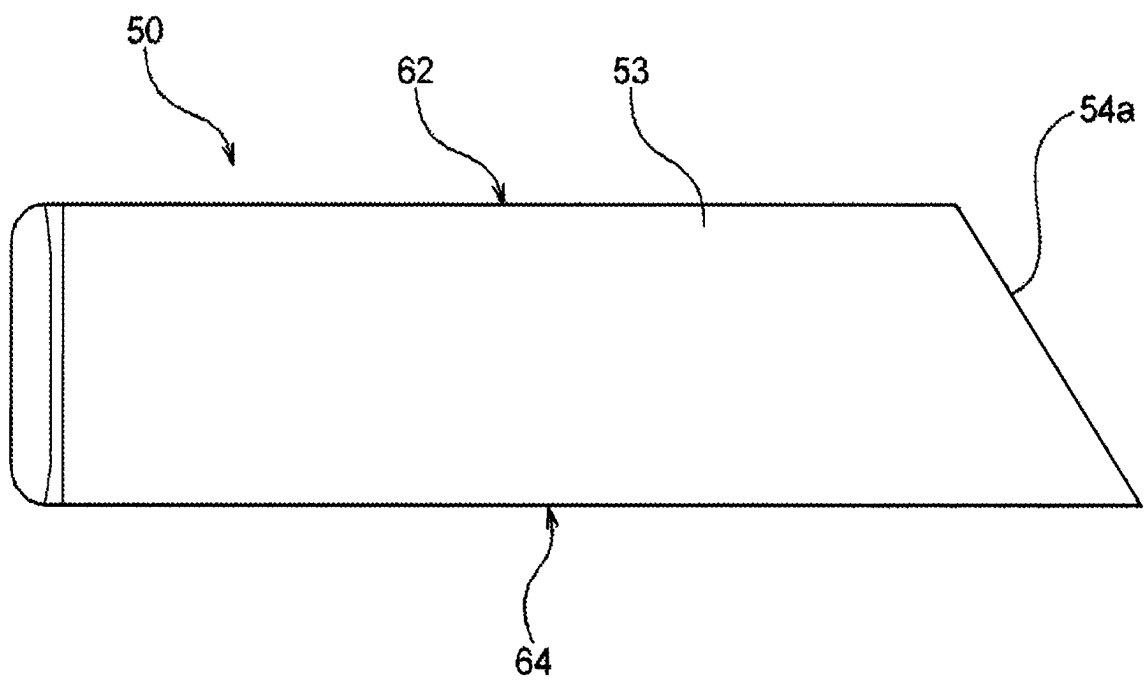


Fig. 2B

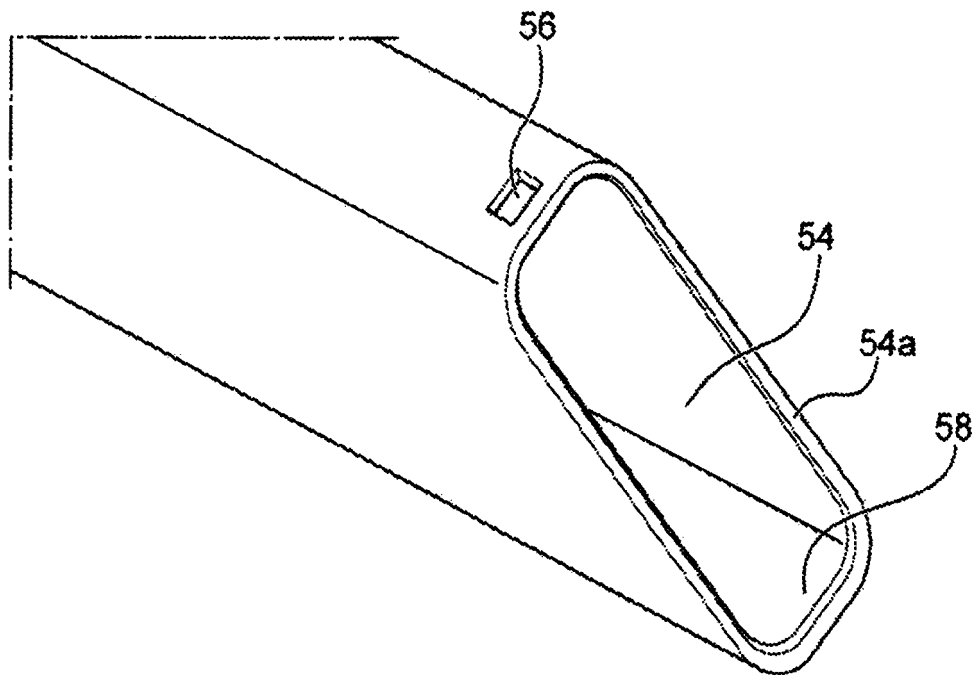


Fig. 3A

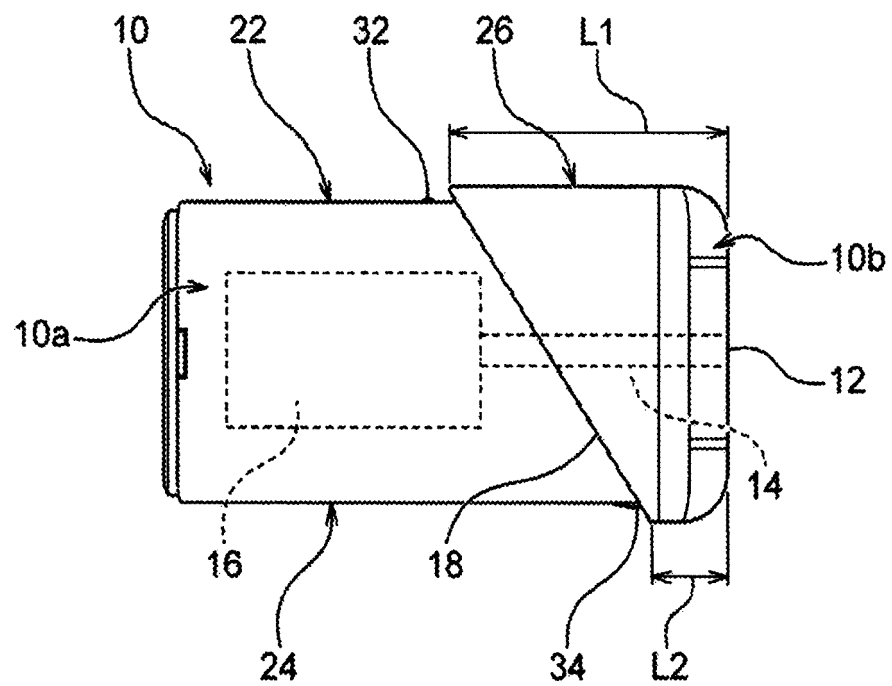


Fig. 3B

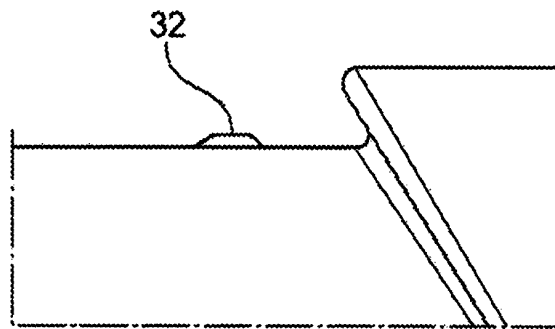


Fig. 3C

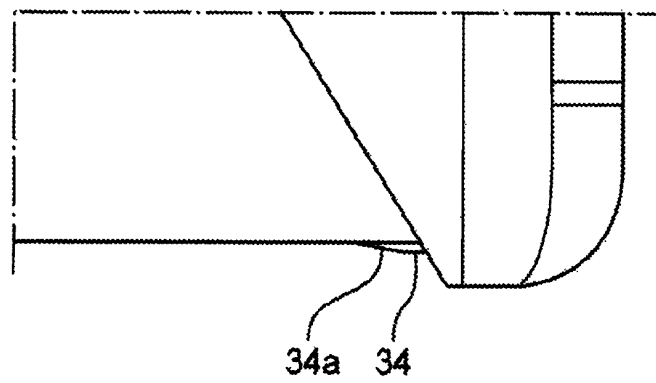


Fig. 4A

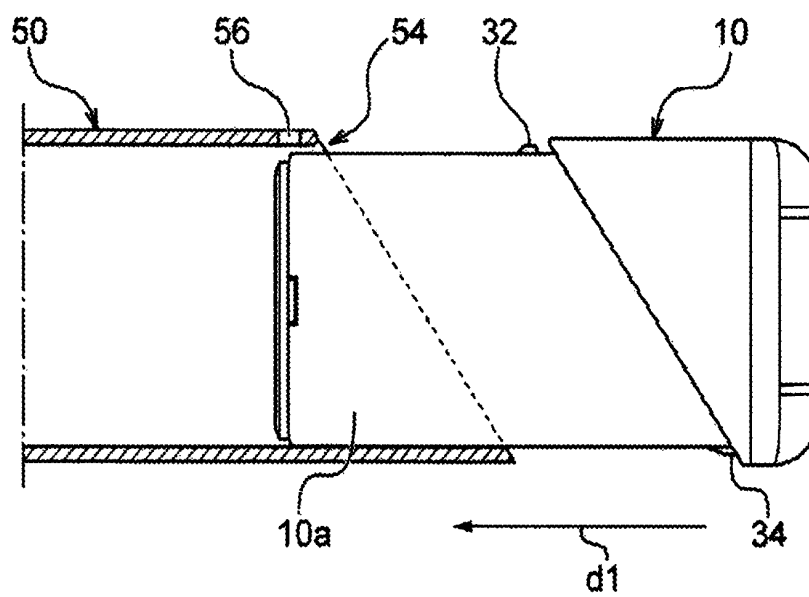


Fig. 4B

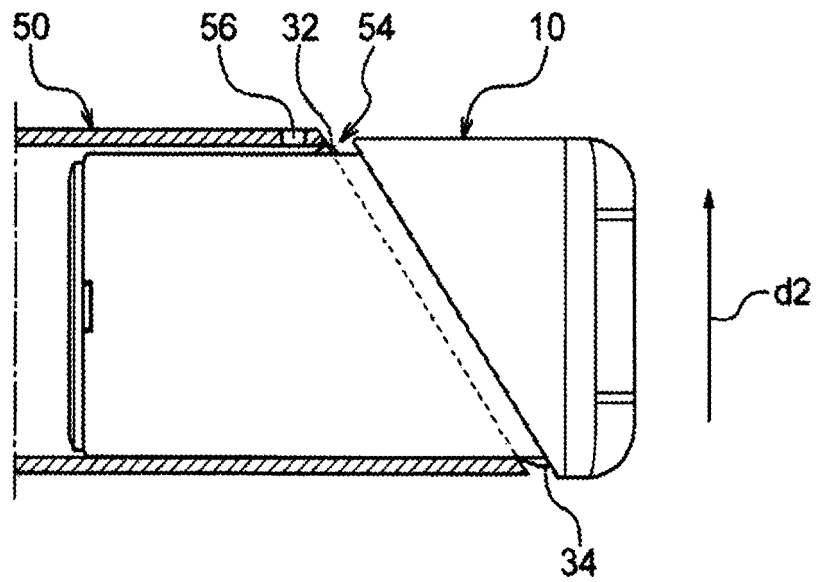


Fig. 4C

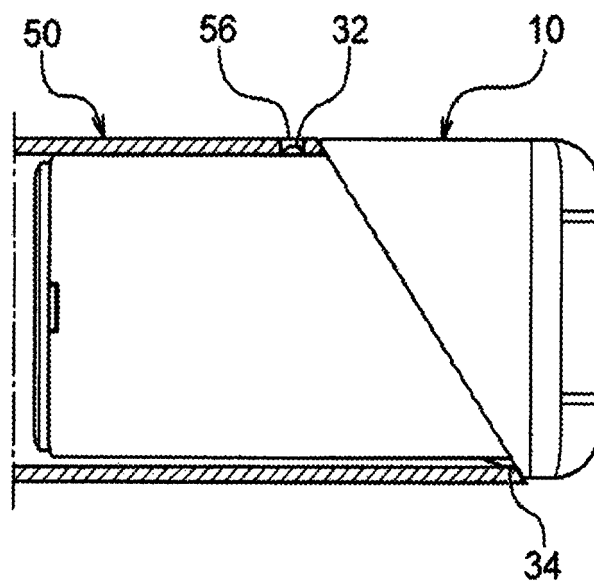


Fig. 5

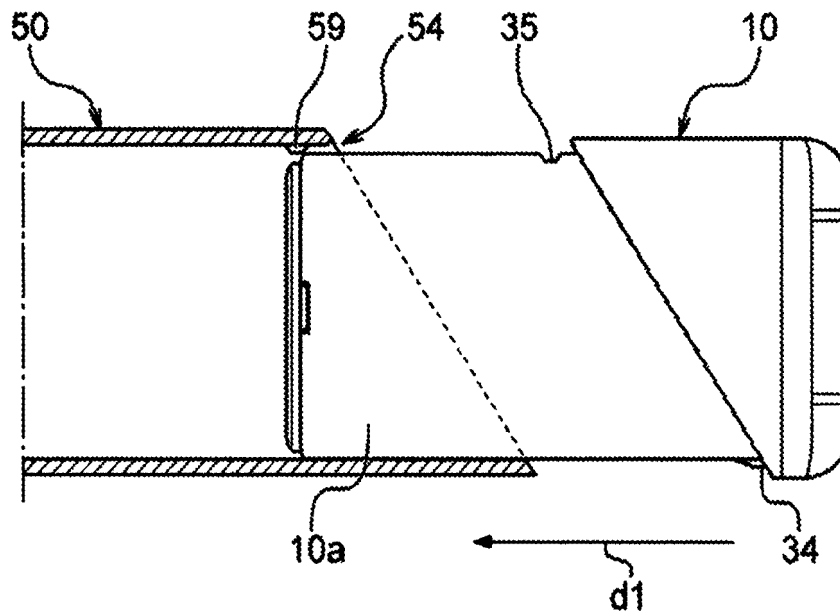
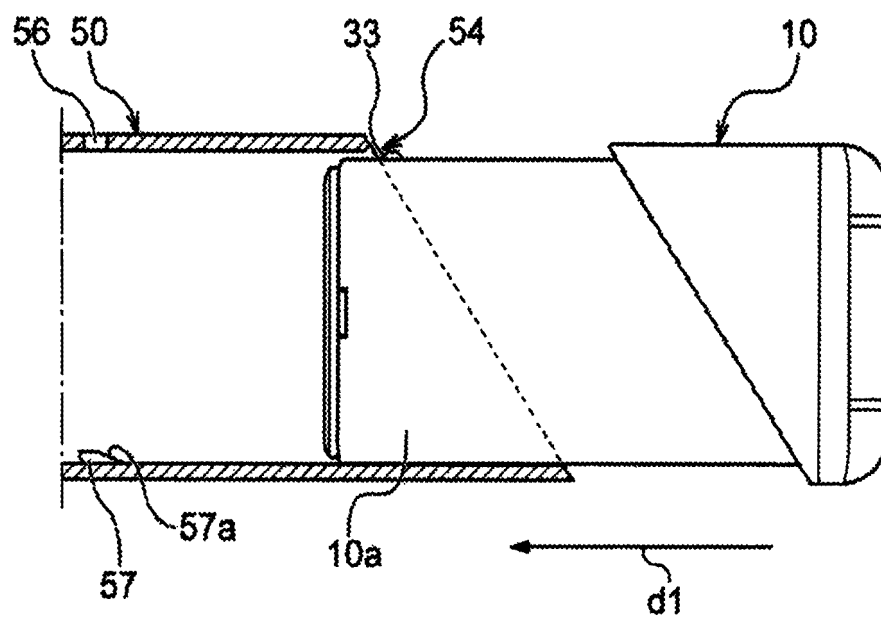


Fig. 6



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2021/026428

A. CLASSIFICATION OF SUBJECT MATTER

A24F 40/40(2020.01)i

FI: A24F40/40

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)

A24F40/40

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	CN 108576941 A (SHENZHEN JINJIA. TECHNOLOGIES CO., LTD.) 28 September 2018 (2018-09-28) paragraphs [0018]-[0033], fig. 1-2	1-5, 7, 9-10, 12-15
A		6, 8, 11
A	WO 2018/048813 A1 (JUUL LABS, INC.) 15 March 2018 (2018-03-15) entire text, all drawings	1-15
A	JP 2020-511146 A (NICOVENTURES HOLDINGS LIMITED) 16 April 2020 (2020-04-16) entire text, all drawings	1-15
A	JP 2020-508649 A (SHENZHEN HAPPY VAPING TECHNOLOGY LIMITED) 26 March 2020 (2020-03-26) entire text, all drawings	1-15



Further documents are listed in the continuation of Box C.



See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"G" document member of the same patent family

Date of the actual completion of the international search

25 August 2021 (25.08.2021)

Date of mailing of the international search report

07 September 2021 (07.09.2021)

Name and mailing address of the ISA/
Japan Patent Office
3-4-3, Kasumigaseki, Chiyoda-ku,
Tokyo 100-8915, Japan

Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/JP2021/026428

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 108576941 A	28 Sep. 2018	(Family: none)	
WO 2018/048813 A1	15 Mar. 2018	(Family: none)	
JP 2020-511146 A	16 Apr. 2020	WO 2018/172765 A1 entire text, all drawings CN 110461175 A KR 10-2019-0120310 A US 2019/0387800 A1 entire text, all drawings WO 2018/157638 A1 EP 3569076 A1 CN 106690425 A	
JP 2020-508649 A	26 Mar. 2020		

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2018048813 A [0003]