

DESCRIPTION

TITLE

DISCHARGE TOOL FOR AEROSOL CONTAINER

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TECHNICAL FIELD

[0001] The present disclosure relates to an aerosol container dispensing device that is attached to the aerosol container.

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BACKGROUND

[0002] Dispensing devices for aerosol containers that are attached to dual-type or single-type aerosol containers including two stems arranged side by side are known. As described for example in Patent Literature 1, such an aerosol container dispensing device includes a nozzle that is attached to the two stems and a cover attached to the body of the aerosol container, wherein the cover has an operating portion configured to depress the nozzle by swinging downward about a hinge arranged at its front side, and wherein an upper surface of the operating portion has a concave surface configured to receive a pressing operation by a finger. The two stems, together with the nozzle, are depressed by a pressing operation performed on the concave surface, and contents that have flown out of the two stems can be dispensed through the nozzle.

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CITATION LIST

Patent Literature

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[0003] PTL 1: JP 2015-145259 A

SUMMARY

(Technical Problem)

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[0004] In the aerosol container dispensing device as described above, the two stems need to be depressed as evenly as possible. In the conventional aerosol container dispensing device, the user can depress the concave surface at a position offset from the center in a left and right direction, and there may be unevenness in the degrees to which the two stems are pressed. This can possibly make it difficult to achieve a desired effect that can be realized, for example, by mixing equal amounts of the contents.

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[0005] It would be helpful to provide an aerosol container dispensing device

that can reduce unevenness in the degrees to which the two stems are pressed.
(Solution to Problem)

[0006] An aerosol container dispensing device according to the present disclosure is attachable to a dual-type or single-type aerosol container including two stems arranged side by side. The aerosol container dispensing device includes: a nozzle configured to be attached to the two stems, and a cover configured to be attached to a body of the aerosol container. The cover includes an operating portion configured to swing downward about a hinge arranged on a front side thereof to thereby depress the nozzle, an upper surface of the operating portion includes a concave surface that is defined by a U-shaped peripheral wall with an opening facing rearward and that is configured to receive a pressing operation, the peripheral wall is configured by peripheral walls provided at both left and right portions thereof so as to extend along a front and rear direction, and a peripheral wall provided at a front portion thereof so as to couple front ends of the peripheral walls provided at both the left and right portions together, and the concave surface is formed by a round surface via which upper surfaces of the peripheral walls provided at both the left and right portions are connected in the front and rear direction.

[0007] In a preferred embodiment of the present aerosol container dispensing device configured as above, the peripheral walls provided at both the left and right portions have a constant height in the front and rear direction.

[0008] In a preferred embodiment of the present aerosol container dispensing device configured as above, the peripheral wall provided at the front portion has the same constant height as the peripheral walls provided at both the left and right portions in a left and right direction.

[0009] In a preferred embodiment of the present aerosol container dispensing device configured as above, upper ends of the peripheral walls provided at both the left and right portions extend horizontally in the front and rear direction in a state before the concave surface receives a pressing operation.

[0010] In a preferred embodiment of the present aerosol container dispensing device configured as above, the round surface has a constant radius of curvature in the front and rear direction.

(Advantageous Effect)

[0011] According to the present disclosure, an aerosol container dispensing device that can reduce unevenness in the degrees to which the two stems are pressed can be provided.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] In the accompanying drawings:

FIG. 1 is a longitudinal sectional view of an aerosol apparatus
5 configured by an aerosol container dispensing device that is taken along the center in a left and right direction according to an embodiment of the present disclosure;

FIG. 2 is a partial sectional front view of the aerosol apparatus of FIG. 1, wherein the right half of the figure illustrates an operating portion along A-A section, and the remaining part illustrates a longitudinal section taken along
10 the center in a front and rear direction;

FIG. 3 is a top view of the aerosol apparatus of FIG. 1;

FIG. 4 is a back view of the aerosol apparatus of FIG. 1;

FIG. 5 is a bottom view of an upper portion cover for the aerosol
15 container dispensing device of FIG. 1; and

FIG. 6 is a vertical sectional view of the aerosol container dispensing device of FIG. 1 when it is being cleaned with a baster syringe.

DETAILED DESCRIPTION

20 **[0013]** Hereinafter, the present disclosure will be described by illustration in more detail with reference to the drawings.

[0014] In an embodiment of the present disclosure as illustrated in FIG. 1, an aerosol container dispensing device 1 (hereinafter also referred to as a dispensing device 1) is fitted to a dual-type aerosol container 2 to thereby form
25 an aerosol apparatus 3. The dual-type aerosol container 2 is configured by two container bodies 4 arranged side by side, and stems 5 protruding upward from the respective container bodies 4. That is, the dual-type aerosol container 2 includes a body 2a, which has the two container bodies 4, and the two stems 5, which protrude upward from the bodies 2a and which are arranged side by side.
30 The aerosol container dispensing device 1 may, however, be configured to be fitted to a single-type aerosol container that includes a body with a single container body, and two stems that protrude upward from this body and that are arranged side by side, although not illustrated.

[0015] In the present application, a downward direction means a direction in
35 which the stems 5 are depressed (downward direction in FIG. 1), an upward direction means the opposite direction, a left and right direction means a

direction in which the two stems 5 are arranged (left and right direction in FIG. 2), a forward direction means a direction from an operating portion 17 to a hinge 16 (left direction in FIG. 1), and a rear direction means the opposite direction.

5 **[0016]** The two container bodies 4 have the same configuration as each other, but are not limited to this. Each stem 5 has a tubular shape with an internal flow path for contents. When each stem 5 is depressed against upward urging force, a valve in the container body 4 is gradually opened in accordance with the degree to which the stem has been pressed, and the valve is fully opened at
10 a predetermined pressed position. The stem 5 can allow the contents of an amount corresponding to the degree to which the valve has been opened to flow out. Each container body 4 includes a bottomed tubular outer container made of metal or synthetic resin, and a metal mounting cup 4a fixed to the outer container, for example by seaming its outer edge. The configuration of the
15 container bodies 4 may, however, be changed as appropriate. The two container bodies 4 contain different types of contents, which can be mixed to produce a desired effect. The two container bodies 4 can, however, contain the same type of contents.

[0017] As illustrated in FIG. 1 to FIG. 3, the dispensing device 1 includes a
20 nozzle 7 that has an outlet 6 for the contents and that is attached to the two stems 5. The nozzle 7 includes connecting tubes 8, which are individually fitted onto the two stems 5 and which have internal flow paths for the contents, and a nozzle body 9. The nozzle body 9 is integrally coupled to respective upper portions of the connecting tubes 8, includes a front end provided with the outlet
25 6, and is configured to be depressed by the operating portion 17. The nozzle body 9 includes an internal flow path through which the respective flow paths in the connecting tubes 8 communicate with the outlet 6. The nozzle body 9 includes a partition wall 10 that divides the internal flow path at the center in the left and right direction, but is not limited to this. The nozzle 7 is configured
30 by only a single component, but is not limited to this. The nozzle 7 is formed by injection molding synthetic resin, but is not limited to this. The shape of the nozzle body 9 is not limited to the one illustrated and can be designed as appropriate.

[0018] As illustrated in FIG. 1 to FIG. 4, the dispensing device 1 includes a
35 cover 11 that is attached to the body 2a of the dual-type aerosol container 2 and that covers the nozzle 7. The cover 11 is configured by only three

components, that is, a fixing plate 12 that is attached to the body 2a, a lower portion cover 13 that is removably attached to the fixing plate 12, and an upper portion cover 14 that is attached to the lower portion cover 13. The cover 11 is, however, not limited to this. For example, the lower portion cover 13 may be configured to be attached to the body 2a without using the fixing plate 12. Additionally, the fixing plate 12, the lower portion cover 13, and the upper portion cover 14 are formed by injection molding synthetic resin, but are not limited to this.

[0019] The cover 11 includes a support portion 15 that is integrally attached to the body 2a of the dual-type aerosol container 2. The cover 11 also includes the operating portion 17 that is coupled to the support portion 15 in a manner such that it can swing vertically via the hinge 16. The upper portion cover 14 includes a frame 18 that is attached to the lower portion cover 13, the hinge 16 that is coupled to the frame 18, and the operating portion 17 that is coupled to the hinge 16. The support portion 15 is configured by the fixing plate 12, the lower portion cover 13, and the frame 18 of the upper portion cover 14. The operating portion 17 can swing downward about the hinge 16 arranged on the front side to thereby depress the nozzle 7.

[0020] The fixing plate 12 is fitted and attached to the mounting cups 4a of the two container bodies 4. The lower portion cover 13 includes locking portions 19 (refer to FIG. 2) that can be locked against both left and right portions of the fixing plate 12, and release levers 20 (refer to FIG. 2) that can change the locked states of the locking portions 19. Each release lever 20 is supported on one end at its upper end, but is not limited to this. The lower portion cover 13 includes an outer peripheral wall 21 that surrounds the fixing plate 12 in the upper view. The release levers 20 are formed as U-shaped notches at both left and right portions of the outer peripheral wall 21.

[0021] The lower portion cover 13 has a bottom wall 22 that is located below the nozzle 7, an inner peripheral wall 23 that is integrally coupled to the bottom wall 22 and that is located on the inner side in a radial direction of the outer peripheral wall 21, and a coupling wall 24 that integrally couples an upper end of the outer peripheral wall 21 and an upper end of the inner peripheral wall 23. A front portion of the lower portion cover 13 has a U-shape with an opening facing upward in the front view. That is, the front portion of the lower portion cover 13 has a front open portion 25 with an opening facing upward in the front view. Part of the nozzle body 9 is arranged in the front open portion 25. A rear

portion of the lower portion cover 13 has a U-shape with an opening facing upward in the rear view. That is, the rear portion of the lower portion cover 13 has a rear open portion 26 with an opening facing upward in the rear view. A finger 34 can be inserted into the rear open portion 26 as illustrated by the white arrow in FIG. 4 so as to perform a pressing operation on the operating portion 17.

[0022] The frame 18 of the upper portion cover 14 is fitted and attached to the inner peripheral wall 23. The frame 18 has a U shape with an opening facing rearward in the top view. As illustrated in FIG. 1 to FIG. 5, the frame 18 includes an outer wall 27 that is fitted and attached to the inner peripheral wall 23, an inner wall 28 that is located on the inner side in the radial direction of the outer wall 27, and a top wall 29 that couples an upper end of the outer wall 27 and an upper end of the inner wall 28 together. The outer wall 27 includes a canopy portion 30 that is arranged in the front open portion 25 and that is located above the nozzle body 9 in the front open portion 25. The canopy portion 30 has a U shape with an opening facing downward in the front view. The canopy portion 30 is fitted and attached to the coupling wall 24 at the front open portion 25.

[0023] The inner wall 28 of the frame 18 is configured by inner walls 28a provided at both the left and right portions so as to extend along the front and rear direction, and an inner wall 28b provided at the front portion so as to couple front ends of the inner walls 28a provided at both the left and right portions together while extending along the left and right direction. The inner walls 28a provided at both the left and right portions each have a constant height in the front and rear direction, but are not limited to this. The inner wall 28b provided at the front portion has the same constant height as the inner walls 28a provided at both the left and right portions in the left and right direction, but is not limited to this. The hinge 16 is coupled to a lower end of the inner wall 28b provided at the front portion. Additionally, the hinge 16 may be coupled to any part of inner wall 28b provided at the front portion other than the lower end. The hinge 16 is configured by an elastically deformable thin portion, thus defining a swinging center axis extending along the left and right direction when the operating portion 17 swings.

[0024] The operating portion 17 has a rectangular shape with the hinge 16 being coupled to its front side in the top view. The center in the left and right direction of the operating portion 17 coincides with the center in the left and

right direction of the nozzle body 9. The center in the left and right direction of the nozzle body 9 coincides with the center in the left and right direction of the entire two stems 5. A lower surface of the operating portion 17 is provided with two abutting projections 31. The two abutting projections 31 abut against
5 an upper surface of the nozzle body 9 in response to a pressing operation on the operating portion 17. The arrangement and shape of the two abutting projections 31 are determined so that they are symmetrical about the center in the left and right direction of the operating portion 17 in the bottom view. The arrangement and shape of abutted portions 32 on the upper surface of the nozzle
10 body 9 against which the two abutting projections 31 abut are determined so that they are symmetrical about the center in the left and right direction of the nozzle body 9 in the top view.

[0025] An upper surface of the operating portion 17 includes a concave surface 35. The concave surface 35 is defined by a U-shaped peripheral wall 33 with
15 an opening facing rearward and is configured to receive a pressing operation. The peripheral wall 33 is configured by peripheral walls 33a provided at both the left and right portions so as to extend along the front and rear direction, and a peripheral wall 33b provided at the front portion so as to couple front ends of the peripheral walls 33a provided at both the left and right portions
20 together. The peripheral wall 33b provided at the front portion is formed in a curved shape in the top view, but is not limited to this. The concave surface 35 is formed by a round surface 35a via which upper surfaces of the peripheral walls 33a provided at both the left and right portions are connected in the front and rear direction. The shape of the concave surface 35 is determined so that
25 it is symmetrical about the center in the left and right direction of the operating portion 17 in the top view.

[0026] The peripheral walls 33a provided at both the left and right portions have a constant height in the front and rear direction, but are not limited to this. The peripheral wall 33b provided at the front portion has the same constant
30 height as the peripheral walls 33a provided at both the left and right portions in the left and right direction, but is not limited to this. Upper ends of the peripheral walls 33a provided at both the left and right portions extend horizontally in the front and rear direction in a state before the concave surface 35 receives a pressing operation, but is not limited to this. The round surface
35 35a has a constant radius of curvature in the front and rear direction, but is not limited to this. A rear lower surface of the peripheral wall 33b provided at the

front portion is smoothly continuous with a front end of the round surface 35a, but is not limited to this. The upper ends of the peripheral walls 33a provided at both the left and right portions are located below upper ends of the inner walls 28a provided at both the left and right portions of the frame 18, but are not limited to this.

[0027] The width in the left and right direction and the radius of curvature of the round surface 35a can be determined as appropriate in consideration of the size of the finger 34 of an expected user. For example, when it is assumed that a woman in her 40s is a user, the average width in the left and right direction of the first joint of the index finger is approximately 16 mm. For example, the width in the left and right direction of the round surface 35a can be set to approximately 14 mm, and the radius of curvature of the round surface 35a can be set to approximately 8 mm.

[0028] According to the dispensing device 1, even in a case in which the user inserts their finger 34 into the concave surface 35 from a position offset from the center in the left and right direction so as to depress the concave surface 35 of the operating portion 17 with the finger 34, the round surface 35a, which is defined by the U-shaped peripheral walls 33, can smoothly guide the finger 34 to the center in the left and right direction of the concave surface 35. Further, at this time, the position of the front end of the finger 34 can be restricted by the peripheral wall 33b provided at the front portion. It can therefore be ensured that the finger 34 is more reliably guided to the center in the left and right direction of the concave surface 35.

[0029] Further, in the present embodiment, the peripheral walls 33a provided at both the left and right portions have a constant height in the front and rear direction, and the peripheral wall 33b provided at the front portion has the same constant height as the peripheral walls 33a provided at both the left and right portions in the left and right direction. It can therefore be ensured that the finger 34 is even more reliably guided, and the finger 34 can be held stably at the center in the left and right direction of the round surface 35a during a pressing operation. Moreover, in the present embodiment, the upper ends of the peripheral walls 33a provided at both the left and right portions extend horizontally in the front and rear direction in a state before the concave surface 35 receives a pressing operation. From this perspective also, it can be ensured that the finger 34 is even more reliably guided. Moreover, in the present embodiment, the round surface 35a has a constant radius of curvature in the

front and rear direction. From this perspective also, it can be ensured that the finger 34 is even more reliably guided, and the finger 34 can be held stably at the center in the left and right direction of the round surface 35a during a pressing operation.

5 **[0030]** Moreover, in the present embodiment, the upper ends of the peripheral walls 33a provided at both the left and right portions are located below the upper ends of the inner walls 28a provided at both the left and right portions of the frame 18. The position at which the finger 34 is inserted toward the concave surface 35 can therefore be restricted by the upper ends of the inner
10 walls 28a provided at both the left and right portions. From this perspective also, it is ensured that the finger 34 is even more reliably guided to the center in the left and right direction of the concave surface 35.

[0031] Thus, according to the dispensing device 1, the operating portion 17 can be depressed more evenly in the left and right direction, so that unevenness
15 in the degrees to which the two stems 5 are pressed can be reduced, and a desired effect can be more reliably achieved by mixing the contents.

[0032] As illustrated in FIG. 6, the dispensing device 1 can be cleaned after use using a baster syringe 36. At this time, the lower portion cover 13 is first removed from the fixing plate 12. Then, a tip end 36a of the baster syringe 36
20 is sequentially connected to each connecting tube 8 of the nozzle 7 from under the lower portion cover 13, so that the flow paths in the nozzle 7 will be cleaned. The upper portion cover 14 includes protruding portions 37 that protrude from a lower surface of the top wall 29 of the frame 18 toward both left and right portions of the upper surface of the nozzle body 9. Accordingly, when the tip
25 end 36a of the baster syringe 36 is pressed from below against one of the connecting tubes 8 of the nozzle 7, the upper surface of the nozzle body 9 that has been pushed up abuts against a lower end of the protruding portion 37 located directly above it. The rise of the nozzle 7 is thereby restricted, and the position of the nozzle 7 within the cover 11 is stable. Thus, the tip end 36a of
30 the baster syringe 36 can be easily connected to the respective connecting tubes 8 of the nozzle 7, and the nozzle 7 can be cleaned without difficulty. Additionally, the two protruding portions 37 protrude to the same height as lower ends of the inner walls 28a provided at both the left and right portions, but are not limited to this. Further, each protruding portion 37 has a columnar
35 shape, but is not limited to this. Moreover, the upper portion cover 14 is not necessarily configured with the protruding portions 37.

[0033] Needless to say, the present disclosure is not limited to the above embodiment, and various changes may be made without departing from the gist of the present disclosure.

5 **REFERENCE SIGNS LIST**

	[0034]	1	Aerosol container dispensing device
		2	Dual-type aerosol container
		2a	Body of dual-type aerosol container
		3	Aerosol apparatus
10		4	Container body
		4a	Mounting cup
		5	Stem
		6	Outlet
		7	Nozzle
15		8	Connecting tube
		9	Nozzle body
		10	Partition wall
		11	Cover
		12	Fixing plate
20		13	Lower portion cover
		14	Upper portion cover
		15	Support portion
		16	Hinge
		17	Operating portion
25		18	Frame
		19	Locking portion
		20	Release lever
		21	Outer peripheral wall
		22	Bottom wall
30		23	Inner peripheral wall
		24	Coupling wall
		25	Front open portion
		26	Rear open portion
		27	Outer wall
35		28	Inner wall
		28a	Inner walls provided at both left and right portions

	28b	Inner wall provided at front portion
	29	Top wall
	30	Canopy portion
	31	Abutting projection
5	32	Abutted portion
	33	Peripheral wall
	33a	Peripheral walls provided at both left and right portions
	33b	Peripheral wall provided at front portion
	34	Finger
10	35	Concave surface
	35a	Round surface
	36	Baster syringe
	36a	Tip end
	37	Protruding portion
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CLAIMS

1. An aerosol container dispensing device that is attachable to a dual-type or single-type aerosol container including two stems arranged side by side, the aerosol container dispensing device comprising:

a nozzle configured to be attached to the two stems, and

a cover configured to be attached to a body of the aerosol container, wherein

the cover includes an operating portion configured to swing downward about a hinge arranged on a front side thereof to thereby depress the nozzle,

an upper surface of the operating portion includes a concave surface that is defined by a U-shaped peripheral wall with an opening facing rearward and that is configured to receive a pressing operation,

the peripheral wall is configured by peripheral walls provided at both left and right portions thereof so as to extend along a front and rear direction, and a peripheral wall provided at a front portion thereof so as to couple front ends of the peripheral walls provided at both the left and right portions together, and

the concave surface is formed by a round surface via which upper surfaces of the peripheral walls provided at both the left and right portions are connected in the front and rear direction.

2. The aerosol container dispensing device according to claim 1, wherein the peripheral walls provided at both the left and right portions have a constant height in the front and rear direction.

3. The aerosol container dispensing device according to claim 2, wherein the peripheral wall provided at the front portion has the same constant height as the peripheral walls provided at both the left and right portions in a left and right direction.

4. The aerosol container dispensing device according to claim 2, wherein upper ends of the peripheral walls provided at both the left and right portions extend horizontally in the front and rear direction in a state before the concave surface receives a pressing operation.

5. The aerosol container dispensing device according to any one of claims 1 to 4, wherein the round surface has a constant radius of curvature in the front and rear direction.