Hand Held Aerosol Dispenser

11.06.2014 Bulletin 2014/24

Application number: 09740908.0

Date of filing: 29.10.2009

Priority: 05.11.2008 EP 08168360

Date of publication of application: 13.07.2011 Bulletin 2011/28

Proprietors:
- Unilever PLC
  London, Greater London EC4Y 0DY (GB)
- Unilever N.V.
  3013 AL Rotterdam (NL)

Inventors:
- BICKNELL, David, Huw
  London, Greater London E5 9NB (GB)
- CHAMBERS, Richard
  Leeds Yorkshire LS14 2AR (GB)
- FIELDING, Andrew
  Leeds Yorkshire LS14 2AR (GB)
- PEACOCK, Adam William
  Cheshire CH64 4BP (GB)
- RANDALL, Graham Paul
  Merseyside, CH63 3JW (GB)
- ROE, James Edward
  Derbyshire, SK13 8JE (GB)
- STAMP, Kevin John
  Cheshire, CH66 4JD (GB)
- ROEBUCK, Jason Peter
  Derbyshire, SK13 8NN (GB)

Representative: Whaley, Christopher
Unilever Patent Group
Colworth House
Sharnbrook
Bedford MK44 1LQ (GB)

References cited:
  Retrieved from the Internet: URL:http://www.bama.co.uk/pdf/aerodynamics 7.pdf> [retrieved on 2010-01-14]

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).
Description

Field of Invention

[0001] The present invention concerns a hand held aerosol dispenser, in particular a hand held aerosol dispenser for dispensing a cosmetic composition onto the surface of the human body.

Background

[0002] US 6,398,082 discloses an actuating mechanism for a hand held canister in which a slider is moveable by finger pressure from a valve-disengaged position into a valve-engageable position and a concealed spring returns the slider to a valve-disengaged position when finger pressure is removed.

[0003] WO 2007/112310 A discloses an aerosol container with a positive actuating structure and an enclosing unit into which the user inserts a finger to actuate the device.

[0004] US 2004/149781 A discloses a pressure resistant plastic bottle for an aerosol composition, said bottle having a waisted section.

Summary of Invention

[0005] An object of the present invention is to provide an ergonomically excellent aerosol dispenser with a slideable actuator button.

[0006] In a first aspect of the present invention there is provided a hand-held cylindrical aerosol dispenser according to claim 1.

Detailed Description

[0007] Throughout this description, orientation terms such as "top", "upper", "vertical", "horizontal", and "downward" should be understood to refer to the dispenser in its "upright" position with the base of the container sat on a horizontal surface. Such orientation for the dispenser is illustrated in Figures 1 and 2.

[0008] The term "depend" should be understood to refer to features that project downwards from others.

[0009] The term "lateral" should be understood to refer to the plane approximately orthogonal to the vertical axis of the dispenser when oriented as described in the paragraph before last.

[0010] The dispenser's vertical axis may be thought of as its principle axis and the term "horizontal" refers to the plane orthogonal to this axis.

[0011] The dispenser of the present invention is easy to operate using a single hand. The angled actuator button and waisted design of the container enable the dispenser to be convenient held in the hand with the index finger able to operate the actuator via a simple extension action. Desirably, the dispenser is dimensioned such that the consumer may grip the waist of the container between the ball of her thumb and her third and fourth fingers and have her index finger in slightly bent position when her finger pad is placed on the centre of a finger pad at the top of the actuator button prior to actuation.

[0012] The top surface of the actuator button should be considered to be the finger pad thereof.

[0013] The waisted section of the container should be understood to be a narrowed section of smooth contour. That is to say, a section of gradually decreasing diameter towards the "waist", followed by a section of gradually increasing diameter. The "waist" should be understood to be the narrowest part of the waisted section.

[0014] The "upper" part of the dispenser should be understood to be the part of the dispenser above its waist and the "lower" part of the dispenser should be understood to be the part of the dispenser below its waist.

[0015] The waisted section of the container is typically present as part of the top half of the container and preferably as part of its top third.

[0016] The upper expansion of the waisted section continues smoothly into the attached spray through cap. That is to say, the upward expansion of the diameter of the dispenser continues to approximately the same degree on moving from the container to the cap. This does not preclude the possibility that there is a clear join between the container and the spray through cap; indeed, this is normal (vide infra). Preferably, the maximum diameter of the upper part of the dispenser is at the point where the spray through cap fits onto the container.

[0017] For reasons of stability, the maximum diameter of the upper part of the dispenser is preferably no greater than the maximum diameter of the lower part of the dispenser. More preferably, the diameter of the upper part of the dispenser is the same or approximately the same as the diameter of the lower part of dispenser.

[0018] In preferred embodiments, the spray through cap is lockable into place on top of the aerosol container. This may be achieved by means of beading around the bottom inside edge of the spray through cap and an associated groove towards the top of the aerosol container. By having the spray through cap "locked" into place on top of the aerosol container, operational robustness is improved.

The spray through cap is a cap through which the product in the aerosol container may be dispensed (sprayed) without being removed. This is achieved by having an associated spray channel that gives fluid communication between the valve on the container and the spray aperture in the spray cap.

[0019] The spray aperture is a gap defined by an outer wall of the spray through cap. Through this gap, the spray channel allows the contents of the container to be dispensed when the valve on the container is opened. The spray aperture is to be considered to be at the front of the dispenser.

[0020] The valve on the container may be opened by downward pressure upon it, typically generated by downward pressure upon the associated spray channel.
In preferred embodiments, the waist of the container has an outer diameter of from 30 mm to 40 mm, more preferably from 33 mm to 39 mm, and most preferably from 35 mm to 37 mm.

In preferred embodiments, the waist of the container is located at from 70 mm to 90 mm, more preferably at from 75 mm to 81 mm, and most preferably at from 77.5 mm to 79.5 mm from the centre of the finger pad of the actuator button, measured as the minimum distance along the curved outer surface of the dispenser. These dimensions are particularly suitable when the dispenser is to be used by women, the resulting dispenser fitting well in the typical female hand and being particularly easy to use.

In preferred embodiments, the ratio of the outer diameter of the waist of the container to the distance between the outer diameter of the waist and the centre of the finger pad of the actuator button, measured as the minimum distance along the curved outer surface of the dispenser, is at least 0.42 to 1 and no greater than 0.50 to 1, more preferably being at least 0.44 to 1 and no greater than 0.48 to 1, and most preferably being at least 0.45 to 1 and no greater than 0.47 to 1. These dimensions are particularly suitable when the dispenser is to be used by women, the resulting dispenser fitting well in the typical female hand and being particularly easy to use.

In preferred embodiments, the ratio of the outer diameter of the waist of the container to the diameter of the container at the point where the spray through cap fits onto the container, is at least 1 to 1.15 and no greater than 1 to 1.3, more preferably being at least 1 to 1.2 and no greater than 1 to 1.3, and most preferably being 1 to 1.25. These relative dimensions, particularly in combination with one of the preferred ratios detailed in the above paragraph, lead to enhanced ergonomic benefits.

The actuator button is operated by sliding it; sliding the actuator button forward causing release of the contents of the aerosol container via the spray aperture. The sliding of the button can be conveniently done by extending one’s index finger when said finger is in a slightly bent position with one’s finger pad sitting on the centre of the actuator button.

For repeated use, it is highly preferred that the actuator button has a return mechanism. Typically the actuator button is fitted with a return spring that is energised when the button is pushed forwards and serves to return the button to its original position when pressure on the button is removed.

The actuator button is at an angle of from 15° to 50°, preferably 20° to 45°, and more preferably 25° to 40°, to the horizontal. These angles should be considered the angle between the actuator button along its front-back axis and the horizontal line in the same vertical plane. When the actuator is curved, it is required that there is a tangent to the curve at the angle indicated.

The actuator button may have ribs running across its top surface in order to increase grip. Preferably, the top surface of the button is made of a thermoplastic elastomer for the same reason. The main body of the actuator button may be made of an alternative plastic material, for example an acetal co-polymer.

The actuator button is fitted with a return mechanism. Typically the actuator button is fitted with a return spring that is energised when the button is pushed forwards and serves to return the button to its original position when pressure on the button is removed.

The features described with reference to the following specific embodiment may be incorporated independently into the generic description given above and/or as given in the claims.

Figure 1 is a rear/side view of a dispenser (1) according to the present invention comprising a spray through cap (2) in place on top of a waisted aerosol container (3).

Figure 2 is a front/side view of the dispenser (1) illustrated in Figure 1.

Figure 3 is an exploded rear/side view of the dis-
With reference to Figures 1 to 3, the aerosol container (3) illustrated in Figure 1, minus the valve cup and associated valve that would normally be present on top of the aerosol container (3).

Figure 4 is a rear/side/top view of the spray through cap (2).

Figure 5 is a front view of the spray through cap (2).

Figure 6 is a top view of the spray through cap (2) with section lines A-A, B-B, and C-C indicated.

Figure 7 is a bottom view of the spray through cap (2).

Figures 8 and 9 are sections across the beading (10 and 11, respectively) at the bottom of the spray through cap (2).

Figure 10 is a section through the spray through cap (2) along A-A.

Figure 11 is a section through the spray through cap (2) along B-B.

Figure 12 is a section through the spray through cap (2) along C-C.

Figure 13 is a front/side view of the spray channel (15).

Figure 14 is a front/side view of the actuator button (6) from slightly underneath.

[0036] With reference to Figures 1 to 3, the aerosol container (3) has a waisted section (4) towards its upper end. The upper expansion of the waisted section (4) of the aerosol container (3) continues smoothly into the attached spray through cap (2), although there is a clear join (5) between the two.

[0037] The spray through cap (2) has a slideable actuator button (6) present on its surface above its maximum cross-sectional dimension and on the opposite side therefrom there is a spray aperture (7) defined by a sidewall (8) of the spray through cap (2).

[0038] The dispenser (1) is designed for maximum ease of handling, especially by the female hand. The waisted section (4) may be easily gripped between the ball of the user’s thumb and third and fourth fingers and when gripped in such a manner, the pad of the index finger of the user’s same hand may rest upon the actuator button (6) with the index finger in a slightly bent position, ready for forward and upward extension.

[0039] In this specific embodiment, the ratio of the outer diameter of the waist of the container (3) to the distance between the outer diameter of the waist and the centre of the actuator button (6), measured as the minimum distance along the curved outer surface of the dispenser, is 0.46 to 1.

[0040] The spray through cap (2) and features thereof are further illustrated in Figures 4 to 12. The spray through cap (2) has a circular cross-section, defined by the side-wall (8), the diameter of the spray through cap (2) decreasing towards its upper end. The side-wall (8) defines an oval spray aperture (7) which is to be considered to be at the front of the dispenser (1). The oval spray aperture (7) has its short axis in the horizontal direction and is located towards the upper end of the side-wall (8).

[0041] Projecting inwardly from the side-wall (8) on either side of the spray aperture (7) are two support wings (9). These support wings (9) are thin walls extending from the top of the side-wall (8) to a point approximately halfway down its length. From the side of each of the support wings (9) facing the spray aperture (7) there projects a spray channel guide wall (10). These spray channel guide walls (10) are in a vertical plane orthogonal to the front-back axis (A-A) of the dispenser (1). They extend from the support wing (9) towards one another in the vicinity of the spray aperture (7). The spray channel guide walls (10) terminate leaving a gap between them that is always slightly greater than the short axis of the oval spray aperture (7).

[0042] At the bottom of the side-wall (8) there is beading (11A and 11B) intended to enable the spray through cap (2) to snap lock onto the top of an aerosol container (1). The beading consists of six smooth beads (11A) equally distributed around the bottom inner surface of the side-wall (8) and interspersed by corrugated beading (11B). Detailed cross-sections of the beading (11A and 11B) is illustrated in Figures 8 and 9 respectively. The beading snap-fits into an indentation (12) around the top of the aerosol container (1) (see Figure 3).

[0043] The spray through cap (2) also has a top wall (13) defining an aperture (14); the aperture being intended to accommodate a segment of an associated spray channel (15) (vide infra). The top wall (13) is linked to the side-wall (8) by an inner wall (16) that varies in height from front to back, being relatively high at the front and decreasing towards the back.

[0044] The top wall (13) has a major segment (13A) that is angled upwards towards the front of the actuator at an angle of approximately 32° from the horizontal and a minor segment (13B) that is approximately horizontal. (See Figure 11). The minor segment (13B) is present at the front end of the top wall (13). The aperture (14) in the top-wall (13) is located centrally where the major (13A) and minor (13B) segments join, but is largely defined by the latter.

[0045] On either side of the aperture (14), i.e., in a directional orthogonal to the direction of movement of the actuator button (6), two projections (17) rise from the minor segment (13B) of the top wall (13). The projections (17) each have raised ridge (18) on their side adjacent to the aperture (14).

[0046] A largely circular aperture wall (19 and 20) lines the aperture (14) and both depends from and rises from the top wall (13) in a vertical direction. (See Figure 12).
The lower segment (19) depending from the top wall (13) is longer than the upper segment (20) rising from the top wall (13). The lower segment (19) depending from the top wall (13) has a gap (21) at its front, parallel further walls (22) extending from the edges of the gap (21) towards the spray aperture (7). These parallel further walls (22) have lower edges (23) that slope upwards in the direction of the spray aperture (7). The parallel further walls (22) terminate level with the outer edge (24) of the inner wall (16).

[0047] The upper segment (20) of the aperture wall that rises from the top wall (13) is abutted by the aforementioned projections (17) that also rise from the top wall (13). From the front of upper segment (20), there extends a raised vault (25), linking upper segment (20) to the inner wall (16) and bridging a “gap” in the minor segment (13B) of the top-wall (13) and the upper segment (20) of the aperture wall. The raised vault (25) is domed at its top and its inner faces (26) are contiguous with the inner faces of the parallel further walls (22) extending from the edges of the gap (21) in the lower segment (19) of the aperture wall depending from the top wall (13). The raised vault (25) is designed to accommodate a segment of the spray channel (15) (vide infra).

[0048] The inner face (20C) of the largely circular aperture wall (19 and 20) is contiguous and has vertical recessions (20D) on either side aligned with the two projections (17) that rise from the top wall (13) on either side of the aperture (14).

[0049] From the major segment (13A) of the top wall (13), a central projection (27) rises and has a rear face (28) that extends through a gap (29) in the top wall (13). This extensive rear face (28) forms a substantial bearing wall and will be referred to as such subsequently.

[0050] Towards the back of the major segment (13A) of the top wall (13), restraining clips (30) project. These are intended for restraining a segment of the actuator button (6) (vide infra). The clips (30) sit over parallel slits (31) in the top wall (13) that extend backwards from the restraining clips (30) - i.e. in the direction away from that in which the actuator button (6) is pushed.

[0051] Two further parallel slits (32) are present in the major segment (13A) of the top wall (13). These further parallel slits (32) also run from front to back and are located on either side of the central projection (27), extending from immediately behind the projections (17) that rise from the top wall (13) to a point level with the rear face (28) of central projection (27).

[0052] The aforementioned spray channel (15) is illustrated in Figure 13. It is comprised of a vertical segment (33) and a segment (34) at an angle of approximately 114° to the vertical segment (34), i.e., 24° from the horizontal. The vertical segment (33) and the angled segment (34) are in fluid connection.

[0053] The vertical segment (33) of the spray channel (15) is designed to fit onto a valve stem (not illustrated) of the aerosol container (3) and is flared at its base (36V) to aid said fitting. The vertical segment (33) of the spray channel (15) is also designed to fit snugly within the aperture (14) in the top wall (13) of the spray through cap (2) (vide supra). In this manner, lateral movement of the spray channel (15) is restricted. The vertical segment (33) of the spray channel (15) has a resilient area (35) at its top upon which a segment of the actuator button (6) presses when the dispenser (1) is operated.

[0054] The vertical segment (33) of the spray channel (15) has a vertically orientated oblong block (33A) projecting from either of its sides, i.e., in a directional orthogonal to the direction of movement of the actuator button (6). These oblong blocks (33A) are designed to be able to slide within the vertical recessions (20D) in the inner face (20C) of the largely circular aperture wall (19 and 20). By such means, rotational movement of the spray channel (15) is restricted.

[0055] The vertical segment (33) of the spray channel (15) has two small retaining clips (33B), each present a little way above the oblong blocks (33A) on either of its side. These clips (33B) serve to hold the spray channel (15) in place during manufacture and snap out of the way on first use of the dispenser (1).

[0056] The angled segment (34) of the spray channel (15) is narrower than the vertical segment (33), both internally and externally. The angled segment (34) leads from the top of the vertical segment (33) towards to the spray aperture (7). At the spray aperture end of the angled segment (34), there is an oval disc (36D), designed to fit immediately behind the oval spray aperture (7) and leave no gap visible from the outside at any time. There is also a conventional swirl chamber (37) at the end of the angled segment (34), designed to improve spray quality.

[0057] The actuator button (6) is illustrated in Figure 14. It is comprised of a finger pad (38) and various features dependent therefrom. The finger pad (38) is longer in the front-back direction, i.e. the direction in which it is designed to slide. The finger pad is designed to sit on the top wall (13) of the spray through cap (2). The finger pad (38) curves upwards at its front end (39) in order to increase ergonomics of use. There are also curved projections (38A) on its top surface for this same purpose. (See Figures 1 and 3 for these features).

[0058] Vertically dependent from the finger pad (38) are two orientation clips (40) that are designed to pass through the two parallel slits (32) that are present in the major segment (13A) of the top wall (13) located on either side of the central projection (27). The clips (40) have outwardly facing wedges (41) that aid their insertion into the slits (32), the clips (40) being temporarily bent inwards when this is done. When the actuator button (6) is pressed, the retaining clips (40) slide forwards within their respective slits (32).

[0059] Depending from the finger pad (38) along its central front-back axis is a keel-shaped structure (43). Said structure slopes outwards from the lower side of the finger pad (38) near its front end and terminates approximately half way along the length of the finger pad (38).
A resilient leaf spring (45) depends from the finger pad (38) at a point towards the rear of its front-back axis. The leaf spring (45) is positioned to pass through the gap (29) in the top wall (13) of the spray through cap (2) that exists behind the central projection (27) rising from said top wall (13). The leaf spring (45) is designed to bear against the substantial bearing wall (28) that forms the extended rear face (28) of the central projection (27) rising from the top wall (13). When the actuator button (6) is pushed forwards, the leaf spring is energised. When the actuator button (6) is released, the leaf spring (45) urges the actuator button (6) back towards its original position.

From the front of the finger pad (38) there depend two projections (46) that are designed to interact with the two projections (17) that rise from the minor segment (13B) of the top wall (13) of the spray through cap (2). When the actuator button (6) is pushed forwards, the lower part of the projections (46) depending from the finger pad (38) slide along the top part of the projections (17) that rise the top wall (13) of the spray channel (15) during this process. When said depending projections (46) have gone past said rising projections (17). The raised ridges (18) on the projections (17) rising from the top wall (13) of the spray through cap (2) serve to guide the projections (46) depending from the finger pad (38) during this process. When said depending projections (46) have gone past said rising projections (17) the actuator button (6) may be depressed.

From the rear of the finger pad (38) there depend two struts (47) bearing hinge joints (48) that are designed to fit into the parallel slits (31) located towards the back of the major segment (13A) of the top wall (13) of the spray through cap (2).

When the actuator is operated, the actuator button (6) is slid forward and the projections (46) depending from the front of the finger pad (38) ride along the projections (17) that rise from the minor segment (13B) of the top wall (13) of the spray through cap (2). Simultaneous to this, the two orientation clips (40) depending from the finger pad slide forward within the two parallel slits (32) that are present in the major segment (13A) of the top wall (13) located on either side of the central projection (27) and the hinge joints (48) depending from the rear of the finger pad (38) slide along the parallel slits (31) located towards the back of the major segment (13A) of the top wall (13) of the spray through cap (2). At the same time, the leaf spring (45) becomes energised by pressing against the bearing wall (28).

When the projections (46) depending from the front of the finger pad (38) have slid passed the projections (17) that rise from the minor segment (13B) of the top wall (13), the actuator button (6) is able to be depressed. At this time, the hinge joints (48) depending from the rear of the finger pad (38) have reached the restraining clips (30) located towards the back of the major segment (13A) of the top wall (13). The finger pad (38) is depressed and the keel-shaped structure (43) dependent therefrom bears down upon the resilient area (35) at the top of the vertical segment (33) of the spray channel (15). This causes the spray channel (15) to bear down upon the valve stem (VS) of the container (1) upon which it sits, thereby opening the valve and allowing discharge of the product within the container (1). During the depression of the vertical segment (33) of the spray channel (15), the angled segment (34) of the spray channel (15) slides downwards within the vault (25) that links the upper segment (20) of the aperture wall to the inner wall (16) and the oval disc (36) at the end of the spray channel (15) slides downwards immediately behind the oval spray aperture (7).

When pressure is removed from the actuator button (6), the spring associated with the valve stem (VS) of the container (1) forces the spray channel (15) upwards, immediately after which the leaf spring (45) dependent from the finger pad (38) forces the actuator button (6) back to its original position.

Claims

1. A hand-held cylindrical aerosol dispenser (1) comprising an aerosol container (3) and an attached spray through cap (2), the container (3) having a valve at its top and a waisted section (4) towards its upper end, the upper expansion of the waisted section (4) smoothly continuing into the attached cap (2), the attached cap (2) reaching a maximum cross-sectional dimension which decreases further up and having:

(i) a slide operated actuator button (6) located on its surface above its maximum cross-sectional dimension, said button (6) being angled upwards at from 15° to 50° and being able to be slid forwards;

(ii) a spray aperture (7) on the opposite side of the cap (2) from the actuator button (6);

(iii) an associated spray channel (15) providing a fluid connection between the valve on the container (3) and the spray aperture (7), said spray channel (15) having a vertical segment (33) designed to fit onto the valve stem of the aerosol container (3) and being flared at its base (36V) to aid said fitting; said vertical segment (33) also being designed to fit snugly within an aperture (14) in a top wall (13) of the spray through cap (2); and said vertical segment (33) having a resilient area (35) at its top upon which a segment of the actuator button (6) presses when the dispenser (1) is operated;
the dimensions of the dispenser (1) allowing the consumer to grip the dispenser (1) around the waisted section (4) of the container (3) and, with the same hand, press upon the actuator button (6) with an index finger to operate the dispenser (1).

2. An aerosol dispenser (1) according to claim 1, wherein the ratio of the outer diameter of the waist of the container (3) to the distance between the outer diameter of the waist and the centre of the finger pad (38) of the actuator button (6), measured as the minimum distance along the curved outer surface of the dispenser (1), is at least 0.42 to 1 and no greater than 0.50 to 1.

3. An aerosol dispenser (1) according to claim 1 or claim 2, wherein the ratio of the outer diameter of the waist of the container (3) to the diameter of the container (3) at the point where the spray through cap (2) fits onto the container (3), is at least 1 to 1.15 and no greater than 1 to 1.35, more preferably being at least 1 to 1.2 and no greater than 1 to 1.3, and most preferably being 1 to 1.25.

4. An aerosol dispenser (1) according to one of the preceding claims, wherein the maximum diameter of maximum diameter of the upper part of the dispenser (1) is at the point where the spray through cap (2) fits onto the container (3).

5. An aerosol dispenser (1) according to any of the preceding claims, wherein the waist of the container (3) has an outer diameter of from 33 mm to 39 mm and is located at from 75 mm to 81 mm from the centre of a finger pad (38) of the actuator button (6), measured as the minimum distance along the curved outer surface of the dispenser (1).

6. An aerosol dispenser (1) according to any of the preceding claims, wherein the actuator button (6) has a return mechanism.

Patentansprüche

1. Tragbarer zylindrischer Aerosolspender (1), der einen Aerosolbehälter (3) und eine befestigte Sprühkappe (2) umfasst, wobei der Behälter (3) an seinem oberen Ende ein Ventil und in Richtung seines oberen Endes einen Taillenabschnitt (4) aufweist, wobei die obere Ausdehnung des Taillenabschnittes (5) nahtlos in die befestigte Kappe (2) übergeht, wobei die befestigte Kappe (2) eine maximale Querschnittsabmessung erreicht, die weiter nach oben abnimmt und der besitzt:

(ii) einen Schiebe-Bedienungsknopf (6), der sich auf seiner Oberfläche über seiner maximalen Querschnittsabmessung befindet, wobei der Knopf (6) 15° bis 50° nach oben gewinkelt ist und nach vorne geschoben werden kann;

(iii) eine Sprühöffnung (7) auf der dem Bedienungsknopf (6) gegenüberliegenden Seite der Kappe (2);

(iii) einen zugehörigen Sprühkanal (15), der eine Fluidverbindung zwischen dem Ventil auf dem Behälter (3) und der Sprühöffnung (7) liefert, wobei der Sprühkanal (15) ein vertikales Segment (33) besitzt, das dazu bestimmt ist, auf den Ventilanschluss des Aerosolbehälters (3) zu passen und mit seiner Basis (36V) abzuschließen, um das Einpassen zu begünstigen; wobei das vertikale Segment (33) auch dazu bestimmt ist, festzustellen in einer Öffnung (14) in einer oberen Wand (13) der Sprühkappe (2) zu passen; und das vertikale Segment (33) einen federnden Bereich (35) an seinem oberen Ende besitzt, auf den ein Segment des Bedienungsknopfes (6) drückt, wenn der Spender (1) bedient wird;

wobei die Abmessungen des Spenders (1) dem Verbraucher erlauben, den Spender (1) um den Tailenabschnitt (4) des Behälters (3) zu fassen und mit derselben Hand mit einem Zeigefinger auf den Bedienungsknopf (6) zu drücken, um den Spender (1) zu bedienen.

2. Aerosolspender (1) nach Anspruch 1, wobei das Verhältnis des äußeren Durchmessers der Taille des Behälters (3) zu dem Abstand zwischen dem äußeren Durchmesser der Taille und dem Mittelpunkt des Fingerpads (38) des Bedienungsknopfes (6), gemessen als der minimale Abstand entlang der gekrümmten äußeren Fläche des Spenders (1), mindestens 0,42 bis 1 beträgt und nicht größer als 0,5 bis 1 ist.

3. Aerosolspender (1) nach Anspruch 1 oder Anspruch 2, wobei das Verhältnis des äußeren Durchmessers der Taille des Behälters (3) zu dem Durchmesser des Behälters (3) an dem Punkt, an dem die Sprühkappe (2) auf den Behälter (3) passt, mindestens 1 bis 1,15 beträgt und nicht größer als 1 bis 1,35 ist, mehr bevorzugt mindestens 1 bis 1,2 beträgt und nicht größer als 1 bis 1,3 ist und am meisten bevorzugt 1 bis 1,25 beträgt.

4. Aerosolspender (1) nach einem der vorhergehenden Ansprüche, wobei sich der maximale Durchmesser eines maximalen Durchmessers des oberen Teils des Spenders (1) an dem Punkt befindet, an dem die Sprühkappe (2) auf den Behälter (3) passt.

5. Aerosolspender (1) nach einem der vorhergehenden
Ansprüche, wobei die Taille des Behälters (3) einen äußeren Durchmesser von 33 mm bis 39 mm hat und sich 75 mm bis 81 mm von dem Mittelpunkt eines Fingerpads (38) des Bedienungsknopfes (6), gemessen als der minimale Abstand entlang der gekrümmten äußeren Fläche des Spenders (1), befindet.

6. Aerosolspender (1) nach einem der vorhergehenden Ansprüche, wobei der Bedienungsknopf (6) einen Rückkehrmechanismus aufweist.

Revendications

1. Distributeur aérosol cylindrique portatif (1) comprenant un flacon d’aérosol (3) et un chapeau traversant de pulvérisation attaché (2), le flacon (3) comprenant une valve à son sommet et une section cambrée (4) en direction de son extrémité supérieure, l’expansion supérieure de la section cambrée (4) continuant de façon régulière dans le chapeau attaché (2), le chapeau attaché (2) atteignant une dimension de section transversale maximum qui diminue de plus en plus vers le haut, et comprenant :

(i) un bouton de déclenchement actionné par glissement (6) qui est situé sur sa surface au-dessus de sa dimension de section transversale maximum, ledit bouton (6) étant incliné vers le haut d’un angle compris entre 15° et 50° et pouvant être glissé vers l’avant ;
(ii) une ouverture de pulvérisation (7) sur le côté opposé du chapeau (2) par rapport au bouton de déclenchement (6) ; et
(iii) un canal de pulvérisation associé (15) qui établit une connexion fluidique entre la valve sur le flacon (3) et l’ouverture de pulvérisation (7), ledit canal de pulvérisation (15) présentant un segment vertical (33) conçu pour s’agencer sur la tige de valve du distributeur aérosol (3) et évasé à sa base (36V) afin de faciliter ledit agencement ; ledit segment vertical (33) étant également conçu pour s’agencer exactement à l’intérieur d’une ouverture (14) dans une paroi supérieure (13) du chapeau traversant de pulvérisation (2) ; et ledit segment vertical (33) présentant une région élastique (35) à son sommet sur laquelle un segment du bouton de déclenchement (6) exerce une pression lorsque le distributeur (1) est actionné,

les dimensions du distributeur (1) permettant au consommateur de saisir le distributeur (1) autour de la section cambrée (4) du flacon (3) et, avec la même main, de presser le bouton de déclenchement (6) avec son index afin d’actionner le distributeur (1).

2. Distributeur aérosol (1) selon la revendication 1, dans lequel le rapport entre le diamètre extérieur de la cambrure du flacon (3) et la distance entre le diamètre extérieur de la cambrure et le centre de la pastille à doigt (38) du bouton de déclenchement (6), mesurée comme la distance minimum le long de la surface externe courbe du distributeur (1), est d’au moins 0,42 à 1 et pas supérieur à 0,50 à 1.

3. Distributeur aérosol (1) selon la revendication 1 ou la revendication 2, dans lequel le rapport entre le diamètre extérieur de la cambrure du flacon (3) et le diamètre du flacon (3) à l’endroit où le chapeau traversant de pulvérisation (2) s’agence sur le flacon (3) est d’au moins 1 à 1,15, et pas supérieur à 1 à 1,35, mieux encore d’au moins 1 à 1,2 et pas supérieur à 1 à 1,3, et idéalement de 1 à 1,25.

4. Distributeur aérosol (1) selon l’une quelconque des revendications précédentes, dans lequel le diamètre maximum du diamètre maximum de la partie supérieure du distributeur (1) se trouve à l’endroit où le chapeau traversant de pulvérisation (2) s’agence sur le flacon (3).

5. Distributeur aérosol (1) selon l’une quelconque des revendications précédentes, dans lequel la cambrure du flacon (3) présente un diamètre extérieur compris entre 33 mm et 39 mm et est située à 75 mm à 81 mm du centre d’une pastille à doigt (38) du bouton de déclenchement (6), mesurée comme la distance minimum le long de la surface externe courbe du distributeur (1).

6. Distributeur aérosol (1) selon l’une quelconque des revendications précédentes, dans lequel le bouton d’actionneur (6) comprend un mécanisme de retour.
Fig.3.

12

3

4

6

39

38A

2
REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

• US 6398082 B [0002]
• US 2004149781 A [0004]