US010427863B2

(12) **United States Patent**
Sahlström et al.

(10) **Patent No.: US 10,427,863 B2**
(45) **Date of Patent: Oct. 1, 2019**

(54) **AEROSOL CONTAINER, AND DETAILS THEREOF**

(71) Applicant: **Purple Holding AB**, Malmö (SE)

(72) Inventors: **Mikael Sahlström**, Malmö (SE); **Kenneth Hagman**, Ödeborg (SE)

(73) Assignee: **PURPLE HOLDING AB**, Malmö (SE)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **15/121,355**

(22) PCT Filed: **Feb. 27, 2015**

(86) PCT No.: **PCT/SE2015/050233**

§ 371 (c)(1),
(2) Date: **Aug. 24, 2016**

(87) PCT Pub. No.: **WO2015/130220**

PCT Pub. Date: **Sep. 3, 2015**

(65) **Prior Publication Data**

US 2016/0362244 A1 Dec. 15, 2016

(30) **Foreign Application Priority Data**

Feb. 28, 2014 (SE) 1450231-4
Sep. 21, 2014 (SE) 1451109-1

(51) **Int. Cl.**
B65D 83/32 (2006.01)
B65D 83/48 (2006.01)
B65D 83/38 (2006.01)

(52) **U.S. Cl.**
CPC ***B65D 83/48*** (2013.01); ***B65D 83/32*** (2013.01); ***B65D 83/38*** (2013.01)

(58) **Field of Classification Search**
CPC B65D 83/38; B65D 83/32; B65D 83/48
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,854,176 A * 9/1958 Edwards B65D 83/205 222/402.25
2,957,611 A 10/1960 Sagarin
(Continued)

FOREIGN PATENT DOCUMENTS

EP 2481688 A1 8/2012
JP 2006312478 A 11/2006
WO 2013019784 A1 2/2013

OTHER PUBLICATIONS

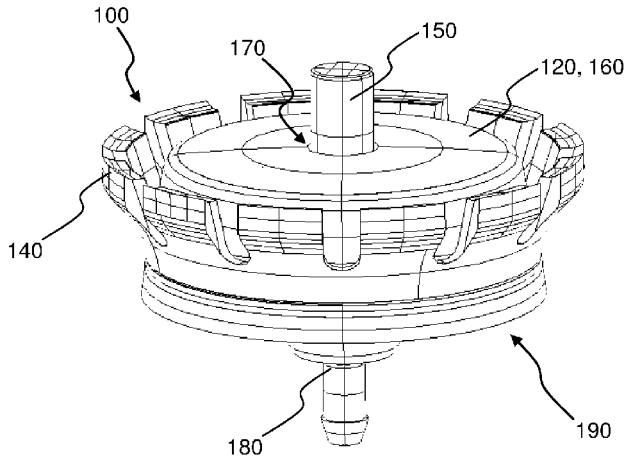
International Search Report from corresponding International Patent Application No. PCT/SE2015/050233, dated May 13, 2015.

Primary Examiner — Frederick C Nicolas
(74) *Attorney, Agent, or Firm* — Tucker Ellis LLP

(57) **ABSTRACT**

A stabilizing member (**120**) forming an upper valve housing for an aerosol valve (**100**) having a valve stem (**150**) for operating the valve (**100**), the stabilizing member (**120**) comprises a body (**160**) having a resilient portion (**140**) arranged at the periphery of the stabilizing member (**120**) for snap fitting in a groove (**18**) of an associated hollow body (**12**), and a radial projection (**145**) arranged at the periphery of the stabilizing member (**120**) and axially displaced relative the resilient portion (**140**), wherein the radial projection (**145**) is configured to seal against the associated hollow body (**12**). The invention further discloses an aerosol valve with such a stabilizing member, as well as a container with such a stabilizing member and a method for providing the container.

19 Claims, 4 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

3,138,304	A *	6/1964	Raehs	B65D 83/14 222/402.13
3,372,844	A *	3/1968	Kitabayashi	B65D 83/38 222/402.1
3,647,121	A *	3/1972	Ayres	B65D 83/48 222/402.24
3,682,355	A *	8/1972	Lo	B65D 83/20 222/402.1
3,819,090	A *	6/1974	Birrell	B65D 83/40 215/223
3,977,576	A *	8/1976	Amabili	B65D 83/48 222/402.1
4,449,647	A *	5/1984	Reed	B65D 83/202 220/759
4,824,075	A *	4/1989	Holzboog	B65D 83/46 222/402.22
5,083,684	A *	1/1992	Ebina	B29C 45/26 222/394
5,277,340	A *	1/1994	Van Brocklin	B05B 11/0013 222/321.7
6,113,070	A	9/2000	Holzboog	
6,296,156	B1 *	10/2001	Lasserre	B65D 45/325 222/394
7,261,225	B2 *	8/2007	Rueschhoff	B65D 83/38 222/402.1
7,775,409	B2 *	8/2010	Scheindel	B65D 83/48 222/402.1
8,418,996	B2 *	4/2013	Rideg	B05B 11/3077 222/402.1
2008/0041888	A1 *	2/2008	Scheindel	B65D 83/48 222/402.1

* cited by examiner

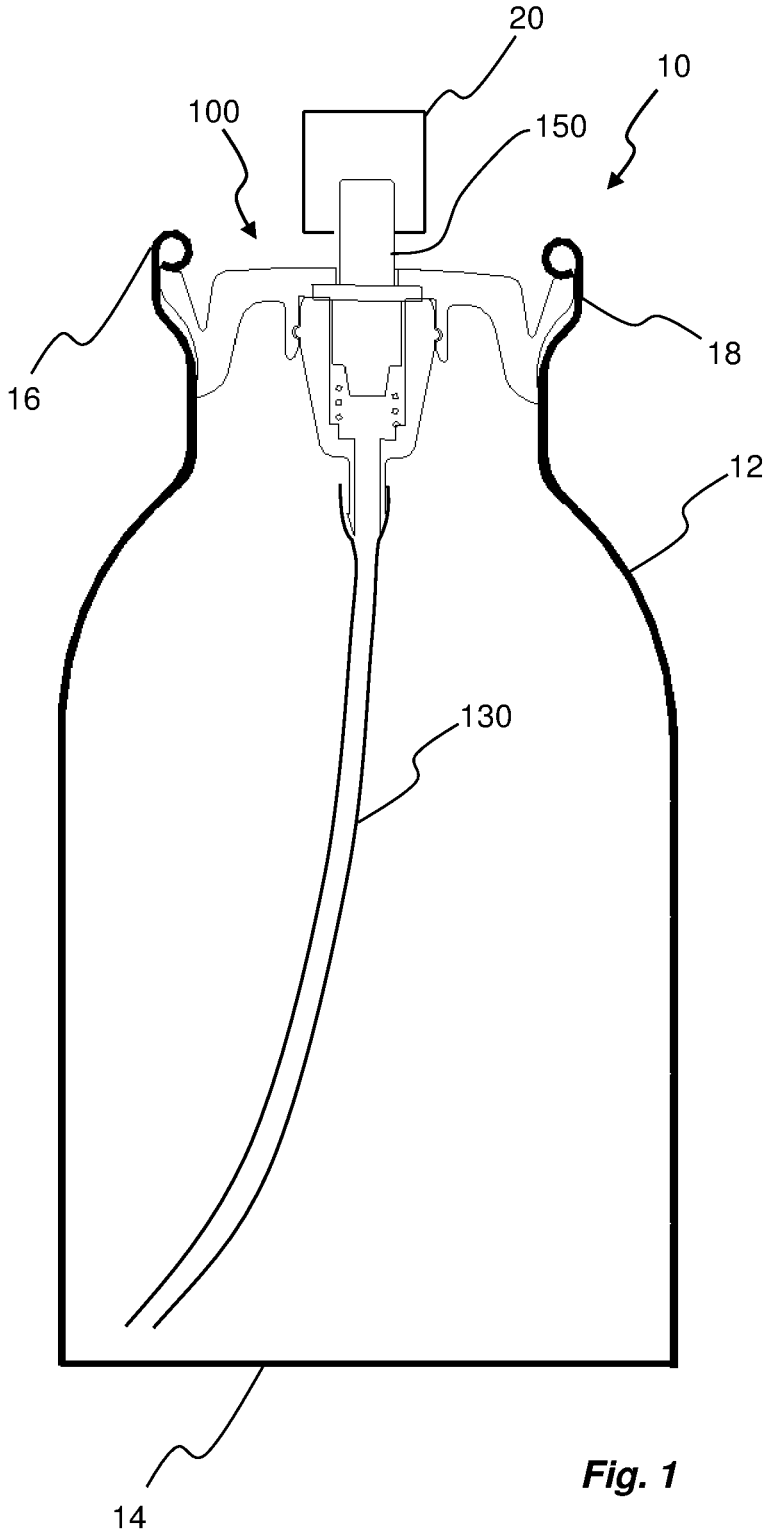


Fig. 1

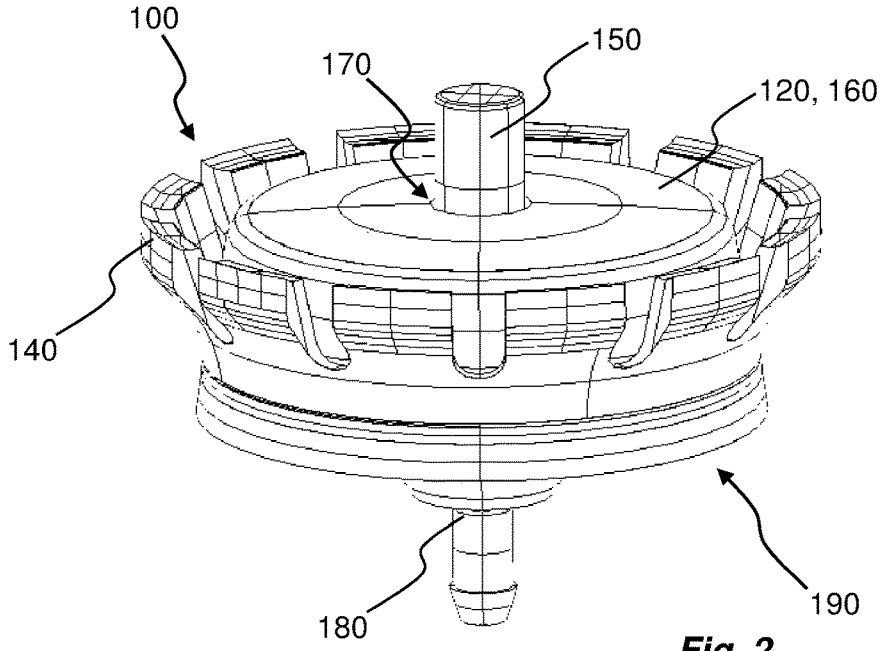

100
170
150
120, 160
140
180
190

Fig. 2

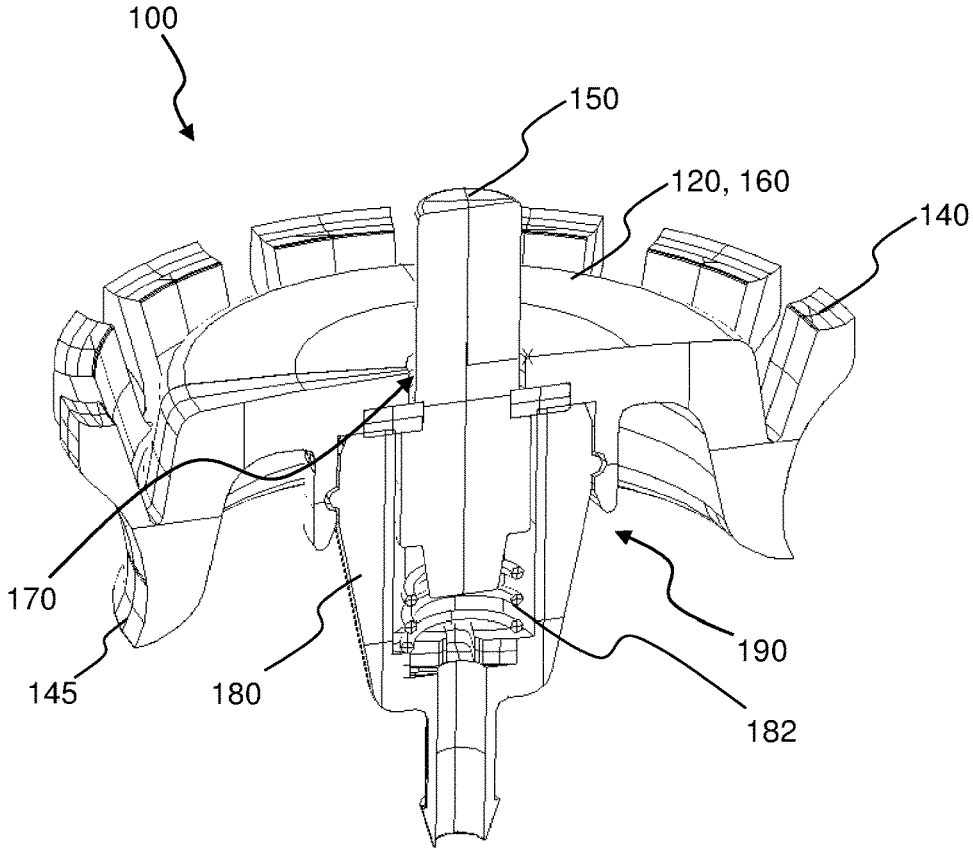

100
150
120, 160
140
170
145
180
190
182

Fig. 3

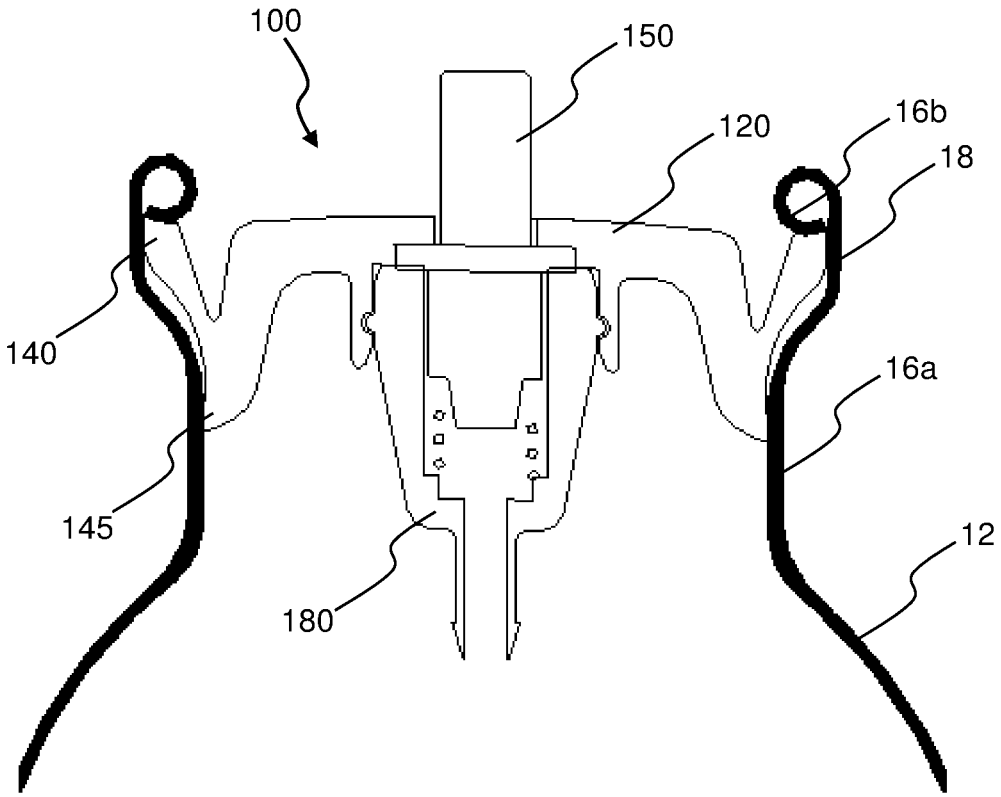


Fig. 4

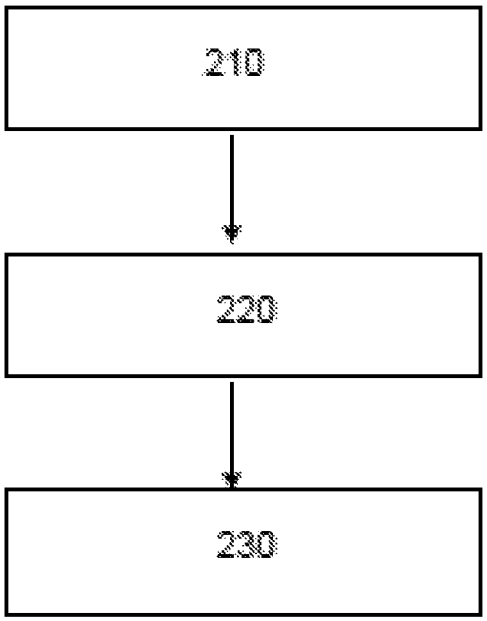


Fig. 5

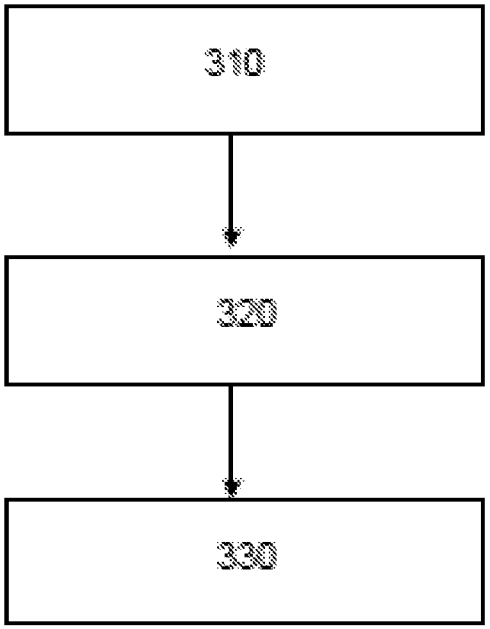


Fig. 6

AEROSOL CONTAINER, AND DETAILS THEREOF

TECHNICAL FIELD

The present invention relates to an aerosol container and details thereof. More particularly, the present invention relates to a stabilizing member forming an upper valve housing for an aerosol valve, an aerosol valve as well as an aerosol container, and a method for providing such aerosol container.

BACKGROUND

Prior art aerosol containers comprise a valve cup sealing the open end of the aerosol can. An aerosol valve is arranged inside the valve cup, and a valve stem of the valve extends up through the valve cup. The entire periphery of the valve cup needs to be sealed against the can in order to provide a safe and secure aerosol container. The valve cup is crimped to the edge of the open end of the container, a process that is highly complex and time-consuming. There is thus a need for an aerosol container having a simple and cost effective construction.

SUMMARY

Accordingly, the present invention preferably seeks to mitigate or eliminate one or more of the above-identified deficiencies in the art singly or in any combination and solves at least the above mentioned problems by providing a stabilizing member, an aerosol valve, an aerosol container, and a method according to the appended patent claims.

An idea of the invention is to provide an aerosol container, and allow for the production of an aerosol container, that may be manufactured in a simple and cost-effective way.

Another idea of the invention is to provide an aerosol container that excludes the need of a valve cup. This is beneficial in many ways; shorter product chains, added design values as the container can be altered in different shapes and forms, as well as lower emission.

According to a first aspect, a stabilizing member forming an upper valve housing for an aerosol valve having a valve stem for operating said valve is provided. The stabilizing member comprises a body having a resilient portion arranged at the periphery of said stabilizing member for snap fitting in a groove of an associated hollow body, and a radial projection arranged at the periphery of the stabilizing member and axially displaced relative the resilient portion, wherein the radial projection is configured to seal against the associated hollow body.

The radial projection may be formed by a resilient material, and it may extend continuously along the periphery of the body of the stabilizing member.

The radial projection may form a radially projecting lip. Optionally, an O-ring may be arranged at the radial projection for further improving the sealing properties of the radial projection. In such embodiment, the actual projection in radial direction may be achieved solely by the radial extension of the O-ring.

The body may have a centrally aligned through hole through which the valve stem of the valve is insertable.

According to a second aspect, an aerosol valve for sealing an open end of a main body of an aerosol container is provided. The aerosol valve comprises a valve stem being movable inside a valve housing between an upper position, in which the valve is closed, and a depressed position in which the valve is open, wherein the valve housing comprises a stabilizing member according to the first aspect.

The valve housing may further comprise a lower valve housing which is connected to the stabilizing member thus forming an upper valve housing.

The lower valve housing may be connected to a dip tube.

According to a third aspect, an aerosol container is provided. The aerosol container comprises a main body having a closed end and an upper end, wherein the upper end is sealed by means of an aerosol valve according to the second aspect.

The upper end may have a narrow portion, an axial end, and a circumferential groove positioned between the narrow portion and the axial end. The resilient portion of the stabilizing member is snap fitted into said groove.

The maximum diameter of the groove may be slightly less than the maximum diameter of the resilient portion.

The radial projection of the stabilizing member may be press fitted against the narrow portion of the main body.

The maximum diameter of the narrow portion may be slightly less than the maximum diameter of the radial projection.

According to a fourth aspect, a method for providing an aerosol container is provided. The method comprises the steps of providing a hollow main body, wherein the main body has a closed bottom end and an open upper end, providing an aerosol valve according to the second aspect, and sealing the open upper end by snap fitting the valve in the main body of the container.

According to an aspect of the invention, a stabilizer for an aerosol valve having a valve housing and a valve stem for operating said valve, said stabilizer comprising a body, and wherein the periphery of said stabilizer is provided with at least one resilient member that extends in a radial direction.

According to a further aspect of the invention, an aerosol valve is provided. The aerosol valve comprises a stabilizer according to the first aspect.

According to a yet further aspect of the invention, an aerosol container is provided. The aerosol container has a closed bottom end and an open upper end, wherein the inside wall of said upper end is provided with a circumferential groove, and wherein said container further comprises an aerosol valve according to the second aspect.

According to another aspect of the invention, a method for providing an aerosol container is provided. The method comprises a first step of extruding a metal blank into a hollow body, wherein the hollow body has a main body, a closed bottom end and an open upper end and wherein the upper end is provided with a circumferential groove. The second step of the method comprises arranging a valve within the walls of the upper end of the container, wherein the valve is an aerosol valve according to the second aspect. The third step of the method comprises sealing the open upper end against the valve body by snapping the at least one resilient members of the stabilizer with the circumferential groove of the hollow body of the container.

According to a yet further aspect of the invention, a method for filling an aerosol container is provided. The method comprises the step of adding the substance, with the exception of the propellant, to the hollow body of the container, and sealing the open upper end against the valve body by snapping the at least one resilient members of the stabilizer with the circumferential groove of the hollow body of the container and injecting the propellant through the aerosol valve.

BRIEF DESCRIPTION OF THE DRAWINGS

Further objects, features and advantages will appear from the following detailed description, with reference being made to the accompanying drawings, in which:

FIG. **1** is a cross-sectional view of an aerosol container according to an embodiment;

FIG. **2** is an isometric view of an aerosol valve according to an embodiment;

FIG. **3** is an isometric cross-sectional view of an aerosol valve according to an embodiment;

FIG. **4** is a cross-sectional view of parts of an aerosol valve according to an embodiment;

FIG. **5** is a schematic view of a method according to an embodiment; and

FIG. **6** is a schematic view of a method according to another embodiment.

DETAILED DESCRIPTION

The following description focuses on embodiments of the present invention applicable to aerosol containers.

In FIG. **1** a schematic view of an aerosol container **10** according to an embodiment is shown. The aerosol container **10** has a main body **12**, a closed bottom end **14** and a closed upper end **16**. While the bottom end **14** is preferably formed integrally with the main body **12**, the upper end **16** is closed by means of an aerosol valve **100**. The container may be of cylindrical shape, or other suitable shapes for aerosol applications. For example, one portion of the main body **12** may have a first shape, such as cylindrical, while another portion of the main body **12** may have another shape, e.g. a rectangular cross-section.

The upper end **16** is provided with a circumferential groove **18**, extending in a radial direction outwards as will be described further in accordance with FIG. **4**. The valve **100** is arranged inside the container **10**, and the valve **100** has an actuator **20** that is provided outside the container **10**, connecting to a valve stem **150** extending through the open upper end **16**. The valve **100** is opened by applying a downward force on the actuator **20**. When the actuator **20** is pressed downwards towards the container **10** the valve **100** is opened and aerosols are allowed to escape from the container **10** through a dip tube **130** arranged inside the container **10**. The dip tube **130** has an open end being in contact with the content of the aerosol container **10**, and an opposite end being connected to the aerosol valve **100**.

The aerosol valve **100** is thus sealing the upper end **16** of the aerosol container **10**, such that the content of the aerosol container **10** is prevented from escaping unless a user operates the valve **100**.

The valve **100** will be described in more details from here on. The valve **100** comprises a stabilizing member **120** as is shown with reference to FIGS. **2** and **3**. The stabilizing member **120** is formed as a body **160**, preferably being made of a plastic material such as a thermoplastic polymer, and is equipped with a through hole **170** for allowing the valve stem **150** to extend through the stabilizing member **120**. The body **160** of the stabilizing member **120** forms an upper valve housing of the valve **100** that acts as a cover for the aerosol valve **100** in the same sense as prior art valve cups.

Hence, the valve stem **150** extends through the upper valve housing **120**, i.e. the stabilizing member, via the through hole **170**. The valve stem **150**, normally being provided with an actuator (see FIG. **1**) is extending inwards and into the valve **100**.

When the valve stem **150** is subject to a pressing force in a direction downwards, i.e. towards the stabilizing member **120** of the valve housing, an interior channel inside the valve **100** is fluidly connected with the interior of the aerosol container **10** such that the content of the aerosol container **10** is allowed to be discharged through the interior channel of the valve stem **150**.

Besides the stabilizing member **120** and the valve stem **150** the aerosol valve **100** normally also comprises a lower valve housing **180**. The lower valve housing **180** forms a fluid conduit, and has a lower end to which the dip tube **130** is connected. The lower valve housing **180** is housing a spring **182**, as well as a lower portion of the valve stem **150**. The spring urges the valve stem **150** upwards, however allows the valve stem **150** to be slidably moveable inside the lower valve housing **180**. The valve stem **150** has an interior fluid channel which is formed between one aerosol inlet, arranged at the side surface of the valve stem **150**, and an aerosol outlet arranged at the upper portion of the valve stem **150**, i.e. at the portion which projects outside the aerosol container **10**.

The position of the aerosol inlet is set such that it is sealed, and closed, when the valve stem **150** is in its idle position. When the valve stem **150** is depressed, the aerosol inlet will move downwards whereby it will open and allow the content to enter the fluid channel of the valve stem **150**. As soon as the pressing force is removed from the valve stem **150** the spring **182** will urge the valve stem **150** upwards such that the aerosol inlet is closed.

The stabilizing member **120** and the lower valve housing **180** together forms a common valve housing **190**; for this, the lower valve housing **180** is connectable to the upper valve housing, i.e. the stabilizing member **120** e.g. by means of a snap fit, a threaded engagement, or similar. A sealing **192** may be provided where the upper valve housing **120** and the lower valve housing **180** lies in contact with each other for preventing leakage. Preferably, the sealing may also form the sealing for closing the aerosol inlet of the valve stem **150**.

The outer periphery of the stabilizing member **120** is provided with a resilient portion **140**, in the shown example the resilient portion is formed by a plurality of resilient members **140** that extends outwards in a radial direction. The resilient portion **140** thus has a radial extension, as well as an upper surface for engagement with the aerosol container **100** as will be described further below.

In one embodiment the periphery of the stabilizing member **120** is provided with 12 members **140**. It should be understood by a person skilled in the art that the number of members **140** could vary depending on design parameters.

Each resilient member **140** forms a spring, such that it will always strive to return to its idle shape and form. If the resilient members **140** are urged radially inwards, i.e. when the stabilizing member **120** is mounted in an aerosol container **10** as will be described below, they will press outwards to seal against the inner surface of the container **100**.

The springs **140** may be provided as plastic flanges, extending outwards. The interface where the flanges **140** are connected to the body **160** thus forms a hinge.

In the shown embodiment the stabilizing member is circular. In other embodiments, the stabilizing member **120** may be of triangular shape, in the shape of a square or in any other suitable form.

As described above, the stabilizing member **120** has a resilient portion **140** arranged at its periphery. The stabilizing member **120** has an axial extension, wherein the resilient portion **140** is provided at an upper axial end. The lower

axial end of the stabilizing member **120** comprises a radial projection **145**. The radial projection **145** may preferably consist of the same material as the rest of the stabilizing member **120**. However, the radial projection **145** is continuous along its periphery and forms a radially projecting lip. The outer radius of the radial projection **145** is preferably less than the outer radius of the resilient portion **140**. Optionally, an O-ring may be arranged at the radial projection for further improving the sealing properties of the radial projection. In such embodiment, the actual projection in radial direction may be achieved solely by the radial extension of the O-ring.

Parts of the aerosol container **10** are shown in FIG. **5**, illustrating the connection between the aerosol container **10** and the aerosol valve **100**.

The upper end **16** of the aerosol container's **10** main body **12** has a narrow portion **16***a*, which narrow portion **16***a* may be a cylindrical portion having a slightly less radius than the lower parts of the main body **12**. A circumferential groove **18** is provided axially between the narrow portion **16***a* and the axial end **16***b* of the main body **12**. The groove **18** is formed radially outwards, such that the groove **18** actually forms a portion having a slightly larger radius than the narrow portion **16***a*, as well as than the axial end **16***b*.

Hence the inside wall of the upper end **16** of the main body **12** is provided with the circumferential groove **18**. The radius of the circumferential groove **18** is slightly less than the radius of the resilient portion **140** of the stabilizing member **120**. Additionally, the radius of the narrow portion **16***a* is slightly less than the radius of the radial projection **145** of the stabilizing member **120**.

Before assembly of the aerosol container **10** the aerosol valve **100** is provided by securely attaching the lower valve housing **180**, including the spring **182** and the valve stem **150**, to the stabilizing member **120**.

When mounting the aerosol valve **100** to the main body **12** in order to form the aerosol container **100** the aerosol valve **100** is positioned adjacent to the upper end **16** of the main body **10**. As the radius of the resilient portion **140** is slightly larger than the radius of the groove **18** (as well as than the radius of the axial end **16***b* of the main body **12**), the valve **100** can not be put in correct position without a pressing force. The valve **100** is therefore pressed against the main body **12** whereby the resilient portion **140** will deflect slightly inwards allowing the valve **100** to move into the main body **12** to some extent. However, as the radius of the radial projection **145** is slightly larger than the radius of the narrow portion **16***a* also the radial projection needs to deform. When a certain pressure is applied to the valve **100** the resilient portion **140** will snap into the groove **18**, preventing the valve **100** from moving upwards. At the same time the radial projection **145** will seal against the narrow portion **18** of the main body **12**. A secure and rigid attachment of the valve **100** is thus achieved.

A method **200** for providing an aerosol container will now be described with reference to FIG. **5**. In a first step **210**, a hollow body is provided e.g. by extruding a metal blank. In a particular embodiment, the hollow body has a main body **12**, a closed bottom end **14** and an open upper end **16**. The upper end is provided with a circumferential groove **18**.

In a subsequent step **220**, a valve **100** is arranged within the walls of the upper end **16**. The valve has a valve stem **150** that opens the valve **100** when it is depressed. The valve **100** is arranged such that the upper end of the valve stem **150** is facing away from the opening of the upper end **16**. The valve further comprises a stabilizing member **120**, where the periphery of the stabilizer **120** is provided with a resilient portion extending in a radial direction, as well as a radial projection **145** as described above.

In a next step **230**, the open upper end **16** is closed by the valve **100** such that the upper end **16** is closed. The resilient portion **140** of the stabilizer **120** will snap into the circumferential groove **18** of the hollow body **12** of the container, thus creating a secure and robust positioning of the valve **100**. The circumferential groove **18** and the resilient portion **140** keeps the stabilizing member **120** in a perfect position relative the main body **12**, and the radial projection **145** of the stabilizing member **120** will seal against the inner wall of the container **10**. Tests have been performed indicating that a suitable down force required to fit the valve **100** may be in the range of 500-1000 N, depending on the dimensions of the stabilizing member **120** and the main body **12**. The distance, from the resting position of the valve **100** prior to the press-fit to the mounted position, may e.g. be in the range of 10-15 mm. Thus, when using the stabilizing member **120** for an aerosol valve **100** the need of a mounting cup, valve cup or sealing gaskets is no longer present.

A method **300** for filling an aerosol container will now be described with reference to FIG. **6**.

In a first step **310**, all the substance except the propellant is added to the hollow body **12** of the container **10**. The substance is usually in the form of a liquid or foam, such as insecticides, deodorants, hair spray and paints.

In a subsequent step **320**, the open upper **16** end is closed by the valve **100** such that the upper end **16** is closed as described in the method according to FIG. **5**.

In a next step **330**, the propellant is injected under pressure through the valve **100**. The propellant may be in the form of a liquified gas, or a compressed gas. The propellant may for example be mixtures of volatile hydrocarbons, typically propane and n-butane.

The use of the above-described stabilizing member **120** for aerosol valve applications has been proven to be very efficient for various types of containers as well as for various applications. For example, the main body **12** of the container may be a plastic bottle (preferably for use with non-pressurized content as well as pressurized content), a so called tin-can made of a suitable metal, and steel bottles manufactured e.g. by impact extrusion, etc., as long as the main body **12** has a means for receiving and holding the stabilizing member **120** of a valve. Hence, the only adaptation necessary for existing bottles and containers is to form the upper end such that it exhibits a groove arranged adjacent to a narrow portion.

Hence the aspects of the above description may be implemented for deodorants, perfumes, hair spray, body spray, creams and lotions, sun care products, shaving gel and foam products, hair color, air fresheners, cleaning products, food such as oil, cream, etc, paint, chemicals, glues and adhesives, pesticides, inhalers, etc. Although such products may vary greatly in terms of viscosity, all these products may be handled using different dimensions of the valve and main body.

Although the present invention has been described above with reference to specific embodiments, it is not intended to be limited to the specific form set forth herein. Rather, the invention is limited only by the accompanying claims and, other embodiments than the specific above are equally possible within the scope of these appended claims.

The invention claimed is:

1. A stabilizing member forming an upper valve housing for an aerosol valve having a valve stem for operating said valve, said stabilizing member comprising a body having a resilient portion arranged at a periphery of said stabilizing

member for snap fitting in a groove formed on an inside of an associated hollow body, and a radial projection arranged at the periphery of the stabilizing member and axially displaced relative the resilient portion, wherein the radial projection is configured to seal against an inner wall of the associated hollow body, and wherein the radial projection is formed by a resilient material.

2. The stabilizing member according to claim **1**, wherein the radial projection extends continuously along the periphery of the body of the stabilizing member.

3. The stabilizing member according to claim **2**, wherein the radial projection forms a radially projecting lip.

4. The stabilizing member according to claim **1**, wherein the body has a centrally aligned through hole through which the valve stem of the valve is insertable.

5. The aerosol valve for sealing an open end of a main body of an aerosol container, comprising the valve stem being movable inside a valve housing between an upper position, in which the valve is closed, and a depressed position in which the valve is open, wherein the valve housing comprises a stabilizing member according to claim **1**.

6. The aerosol valve according to claim **5**, wherein the valve housing further comprises a lower valve housing which is connected to the stabilizing member thus forming the upper valve housing.

7. The aerosol valve according to claim **6**, wherein the lower valve housing is connected to a dip tube.

8. The aerosol container, comprising a main body having a closed end and an upper end, wherein the upper end is sealed by means of the aerosol valve according to claim **5**.

9. The stabilizing member according to claim **1**, wherein the resilient portion is arranged at an upper axial end of the stabilizing member, and wherein the radial projection is arranged at a lower axial end of the stabilizing member.

10. The stabilizing member according to claim **1**, wherein the resilient portion comprises a plurality of resilient members that extend outwards in a radial direction of the stabilizing member.

11. The aerosol container according to claim **8**, wherein the upper end has a narrow portion, an axial end, and a circumferential groove positioned between the narrow portion and the axial end, wherein the resilient portion of the stabilizing member is snap fitted into said groove.

12. The aerosol container according to claim **11**, wherein a maximum diameter of the groove is slightly less than a maximum diameter of the resilient portion.

13. The aerosol container according to claim **11**, wherein the radial projection of the stabilizing member is press fitted against the narrow portion of the main body.

14. The aerosol container according to claim **13**, wherein a maximum diameter of the narrow portion is slightly less than a maximum diameter of the radial projection.

15. An aerosol container, comprising a main body having a closed end and an upper end, wherein the upper end is sealed by means of an aerosol valve comprising a valve stem being movable inside a valve housing between an upper position, in which the valve is closed, and a depressed position in which the valve is open, wherein the valve housing comprises a stabilizing member having a valve stem for operating said valve, said stabilizing member comprising a body having a resilient portion arranged at the periphery of said stabilizing member for snap fitting in a groove of an associated hollow body, and a radial projection arranged at the periphery of the stabilizing member and axially displaced relative the resilient portion, wherein the radial projection is configured to seal against the associated hollow body, wherein the upper end has a narrow portion, an axial end, and a circumferential groove positioned between the narrow portion and the axial end, wherein the resilient portion of the stabilizing member is snap fitted into said groove.

16. The aerosol container according to claim **15**, wherein a maximum diameter of the groove is slightly less than a maximum diameter of the resilient portion.

17. The aerosol container according to claim **15**, wherein the radial projection of the stabilizing member is press fitted against the narrow portion of the main body.

18. The aerosol container according to claim **17**, wherein a maximum diameter of the narrow portion is slightly less than a maximum diameter of the radial projection.

19. A method for providing an aerosol container, comprising the steps of:

providing a hollow main body, wherein the main body has a closed bottom end and an open upper end;

providing an aerosol valve having:

a valve stem being movable inside a valve housing between an upper position, in which the valve is closed, and a depressed position in which the valve is open, wherein the valve housing comprises a stabilizing member, the stabilizing member having a body having a resilient portion arranged at the periphery of said stabilizing member for snap fitting in a groove formed on an inside of the hollow main body, and a radial projection arranged at the periphery of the stabilizing member and axially displaced relative the resilient portion, wherein the radial projection is configured to seal against an inner wall of the hollow main body, and

wherein the radial projection is formed by a resilient material, and

sealing the open upper end by snap fitting the valve in the main body of the container.

* * * * *