Nov. 23, 1965 C. O. KUFFER 3,219,069

AEROSOL VALVE

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Fig. 1.

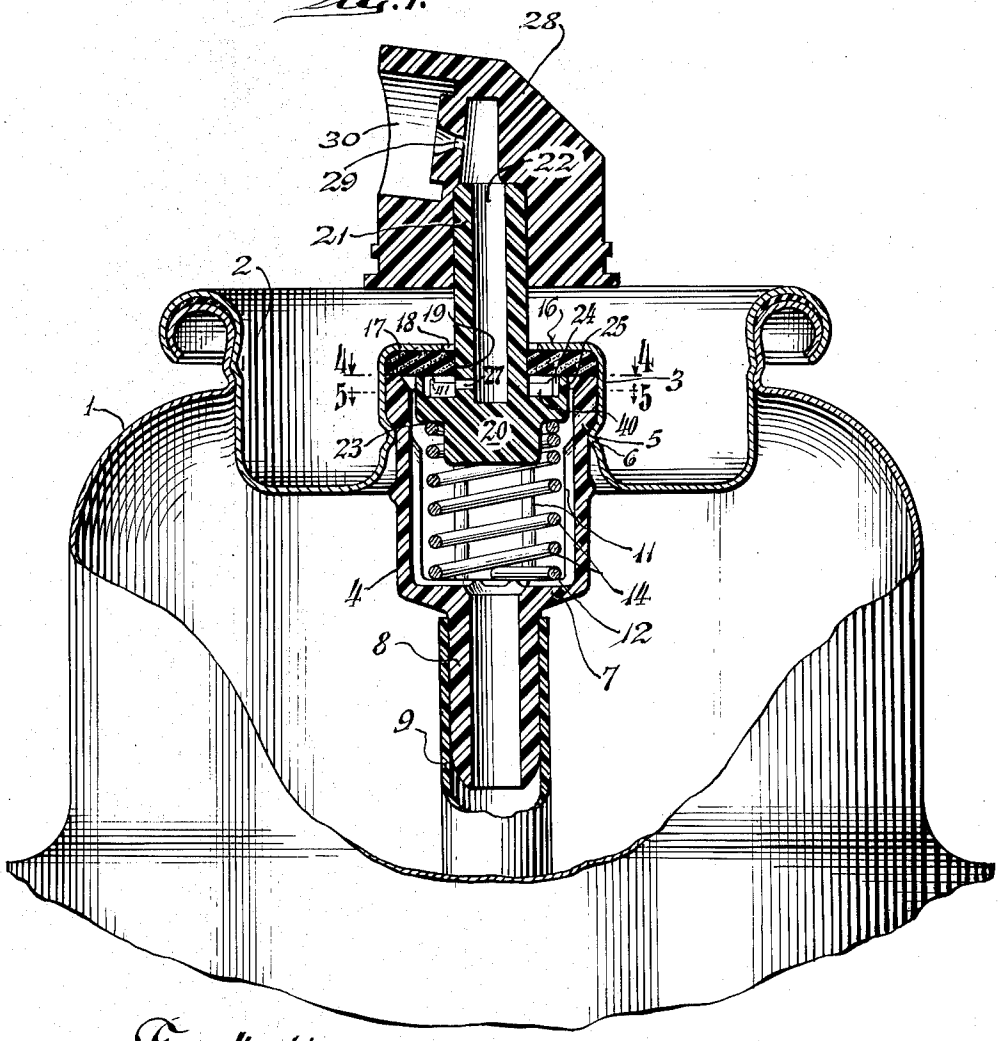


Fig. 4.

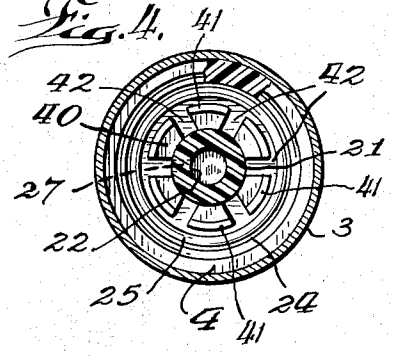
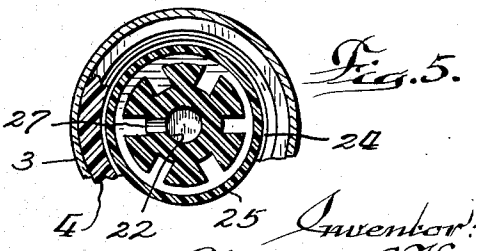


Fig. 5.



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AEROSOL VALVE

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Fig. 2.

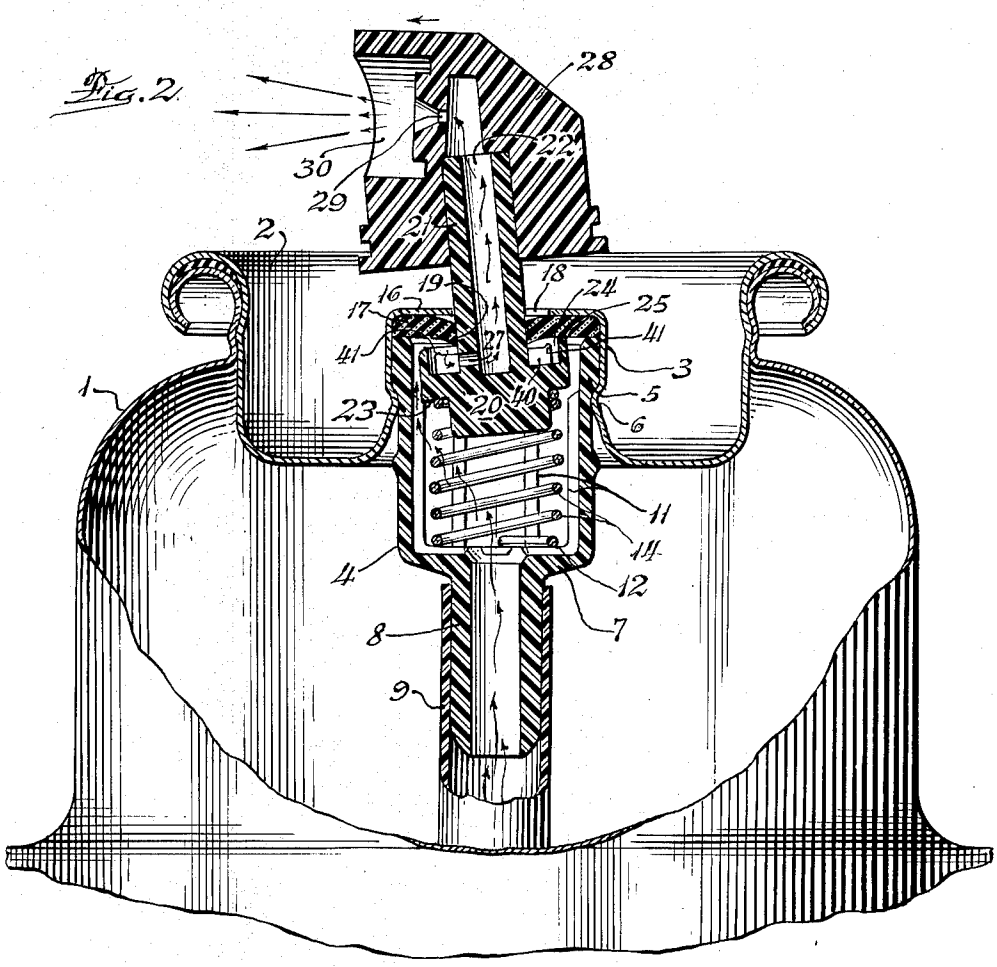
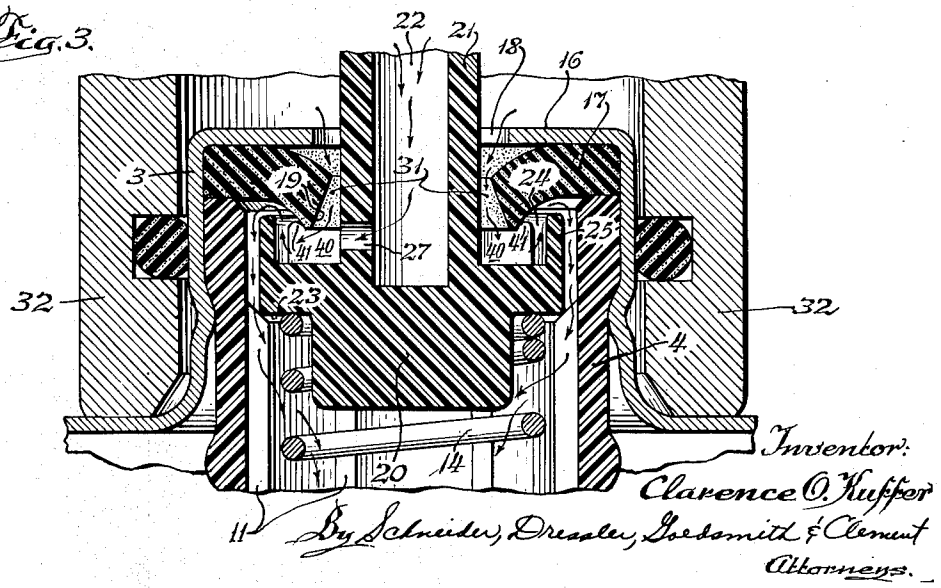


Fig. 3.



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3,219,069

AEROSOL VALVE

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14 Claims. (Cl. 141—20)

This invention relates to an aerosol valve which may be opened by either vertical or lateral pressure, and particularly to a valve assembly through which a container may be filled with fluid under pressure.

Aerosol valves are commonly used on containers holding a mixture of an active liquid or concentrate and a propellant. The propellant is normally in a condition in the container such that there is a liquid phase and a gas phase under pressure. Commonly used propellants are pressure and/or temperature liquefiable propellants such as Freon, which is available from E. I. du Pont de Nemours & Co. Thus, when the valve is opened, the pressure of the propellant propels the mixture through the discharge orifice of the valve, which is so restricted and configurated that the mixture is atomized as a spray into the surrounding atmosphere. The spray may be dispersed in air or deposited on the surface against which it is directed.

The concentrate and the propellant are usually measured into the container by two common methods. One is called "cold filling." By this method the propellant is refrigerated to liquid form and a measured amount thereof is poured into the container before the valve is secured to the container. The other method is called "pressure filling" and by this method the propellant is passed under pressure through the valve into the container after the concentrate is measured into the container, and after the valve is secured onto the container. Pressure filling is of increasing popularity due to the high maintenance cost of refrigerated equipment and other factors.

A valve assembly incorporating the present invention is a pressure fillable valve of improved operating and filling characteristics and features. It includes a valve body located within a valve housing, or spring cup, a gasket or valve seal, and a mounting cup, or similar device for mounting the valve on a container. The valve body has a valve stem portion that extends through the gasket, through the mounting cup, and is exposed above the remainder of the valve. The valve stem has a passageway for the passage of aerosol material to be dispensed by the valve and carries tips which may be of various designs and which may provide for various types of spray patterns as desired.

The aerosol fluid in the container is prevented from leaking out of the valve by a spring which urges the valve body against the gasket. The sealing spring is seated between the valve body and the housing or spring cup. Also, the gasket tightly hugs the valve stem to prevent leakage between those two parts.

During a typical pressure filling operation, the propellant is directed through an adaptor interconnecting the source of propellant and the valve. The adapter seals to the mounting cup or cover, and the gas pressure moves the sealing gasket away from the valve stem to provide a passageway between the valve stem and gasket.

It has been found that with some types of aerosol valves which are susceptible to being pressure filled, the valves do not properly return to their closed position when the propellant pressure is released from the valve. Due to various possible causes, the sealing gasket occasionally is caught on the valve body portion of the stem or eyelet. This is particularly true with valves of the type wherein the eyelet or valve body has an outer peripheral rim for sealing against the underside of the sealing gasket. This difficulty has been a serious drawback in connection with the commercialization of some types of aerosol valves to be used in connection with pressure filling production systems.

The present invention provides for an aerosol valve that can be opened by either lateral or vertical pressure and through which the container on which it is located can be rapidly filled. The valve, and particularly the valve sealing assembly, is arranged to allow the propellant to be admitted readily through the passage formed between the sealing gasket and stem when the gasket is moved away from the stem by the propellant under pressure. When the filling action is completed, leakage between the sealing gasket and stem is prevented by quickly and positively returning the sealing gasket to its sealing position about the valve stem, and the valve body is immediately moved into sealing engagement with the gasket.

In accordance with the present invention, there is provided a relationship between the valve body or eyelet and the sealing gasket which insures the capacity of the valve to be pressure filled and to positively return the sealing gasket to its normal planar condition without catching or otherwise being so distorted as to cause leakage between those two members. This relationship is such that during the pressure filling operations, the gasket is pressed against the upper portion of the valve body of the eyelet by the propellant pressure with provision at the interface between the two parts for the passage of fluid thereacross.

At the same time, there is relation between the valve body of the eyelet and the valve housing or shell which so controls and limits the movement or travel of the eyelet that the relation between the gasket and the valve body is insured.

When valves forming embodiments of this invention are subjected to pressure filling, the fluid pressure causes both the unclamped inner peripheral edge of the gasket (the outer edge being clamped between the outer member from mounting the valve on a container of the valve shell or housing) and the eyelet to move downwardly within the valve shell. The movement of the eyelet, however, is limited by abutment of the underside thereof against a shoulder formed within the valve shell. The gasket movement is therefore limited so that its free inner edge moves away from the outer surface of the stem or tubular portion of the eyelet and its undersurface engages the upper surface portion of the valve body of the eyelet. In a particular embodiment of the invention, as shown in the drawings and described in detail hereinbelow as an illustrative example of the invention, a part of the upper surface portion of the valve body is provided with passageways so that fluid entering the valve between the gasket and the outer surface of the tubular stem may pass under the undersurface of the gasket and over the rim portion of the eyelet for flow into the container to which the valve is attached.

The structure by which the above and other advantages of the invention are attained is described in greater detail below in this specification with reference to the drawings forming a part hereof and showing a preferred illustrative embodiment of the invention. In the drawings each and every detail shown is incorporated hereby as a part of this specification, like reference numerals refer to like parts, and:

FIGURE 1 is a fragmentary cross-sectional view through an aerosol container and a valve embodying the invention, with the valve shown in the closed position;

FIGURE 2 is a view similar to FIGURE 1 showing the valve and spray tip tilted, with the valve in an open position;

FIGURE 3 is a fragmentary cross-sectional view of the valve as positioned during pressure filling;

FIGURE 4 is a view taken along line 4—4 of FIGURE 1; and

FIGURE 5 is a view taken along line 5—5 of FIGURE 1.

The valve forming an illustrative embodiment of this invention is shown mounted on a container **1**, which is provided with a central opening over which there is secured a mounting cup **2** having a centrally disposed, upwardly projecting boss or pedestal **3**. The exemplary container shown is a metal can with a standard size central opening for mounting an aerosol valve. It should be understood that the container may be a bottle, or other form of container, and that valves embodying the invention are not limited to the type of container employed or to the manner of mounting the valve thereon.

Located within and supported by the pedestal **3** is a valve housing or spring cup or shell **4** which is provided with an outer annular shoulder **5** that cooperates with inwardly extending crimped rib portions **6** in the pedestal **3** whereby the shell is held in position in the mounting cup. The shell **4** is open at the top and has a tubular extension **8** depending from its bottom wall **7**. A dip tube **9** is secured to the extension **8** and extends downwardly to the bottom of container **2** as a conduit for movement of the aerosol material to the valve for dispensing the material from the container.

The interior of the valve shell **4** is provided with radially projecting ribs **11** which extend axially from the bottom wall **7** to a short distance below the top of the shell. The ribs **11** also have radially extending portions **12** that run along the inner surface of bottom wall **7** of the housing **4** and serve to support the bottom end of a coiled compression spring **14**. The ribs **11** and **12** position the spring **14** centrally of the spring cup and the radial portions **12** support the spring off of the bottom of the spring cup so that fluid can continue to flow through the spring cup and under the spring regardless of the extent to which the spring **14** is compressed.

A sealing gasket **17** is disposed between the top wall **16** of the pedestal and the upper edge of the valve shell **4**. The top wall **16** is provided with a central opening **18**, and the gasket **17** is provided with an opening **19** that is smaller than the opening **18** and aligned therewith.

Within the valve shell there is an eyelet **20** that has a stem portion **21** projecting upwardly from a valve body portion through the open end of the valve shell **4** and through the opening **19** in the sealing gasket **17**. The outer diameter of the stem is of a size to be hugged by the edge of sealing gasket **17** defining the opening **19** to prevent leakage therebetween. The spring **14** biases the valve body portion of the eyelet against the underside of the gasket to provide the primary seal for the valve.

In the embodiment illustrated, the valve stem **21** is provided with a longitudinal bore **22** terminating at or within the valve body. Adjacent to the lower or inner end of the base **22** there are one or more internal orifices **27** (only one being shown in this embodiment) that communicate with the base and extend through the wall of the stem.

The valve body is of a generally cylindrical shape with a reduced diameter lower portion forming a spring guide and retainer and to provide a shoulder **23** against which the upper end of spring **14** seats. The diameter of the shoulder **23** is slightly larger than the distance between the inner edges of diametrically opposed ribs **11**, so that the rib limit the vertical travel of the valve body **20** when it is moved in a valve opening direction. However, sufficient space remains between the outer surface of the valve body **20** and the inner surface of the spring cup **4** above the ribs so that the valve body can be moved relative to the gasket to permit both tilt and push-down valve action.

The valve body **20** is recessed to form an annular groove **24** outwardly of which there is an annular rim **25** which is biased into sealing engagement with the gasket **17** by the spring **14**. The sealing engagement between the rim **25** on the valve body and the gasket **17** prevents the flow of fluid between the interior of the container and annular groove **24**. The annular groove **24** is in communication with the bore **22** of the valve stem **21** through the internal orifice **27**, so that aerosol material flowing over the top of the rim **25** will flow into the groove **24** and then through the orifice **27** into the stem base **22** from which it will flow out of the valve irrespective of the direction in which the valve stem is tilted. A spray tip **28** is mounted on the valve stem **21** and is provided with a terminal orifice **29** and discharge opening **30** that communicate with the bore **22**. The spray tip **28** fits over the top edge of valve stem **21** so that pressure exerted on the spray tip in a vertical or lateral direction will move the valve stem and body in a corresponding manner to break the seal between the valve body and the gasket. The spray tip illustrated is but one type and shape that may be employed.

The valve retains the pressurized contents in the container **2** by the sealing engagement of the valve body rim **25** with the gasket **17**. When the contents of the container are to be sprayed, the tip is pressed downwardly or tilted to move the valve body rim **25** away from the undersurface of gasket **17** against the action of the spring **14**. When the finger pressure, either vertical, or lateral, displacing valve body **20** from sealing engagement with the gasket **17** is released, the spring **14** immediately forces the valve body back to its normal, sealed position.

One of the significant features of the valve of the present invention lies in the capacity of the valve to permit the container on which the valve is located to be pressure filled rapidly through the valve and when the filling operation is completed, to positively seal the entire assembly against leakage. This feature may be understood most readily by referring to FIGURE 3, which shows a container being filled by the introduction of propellant through the annular passageway **31** formed between the gasket **17** and the stem **22** and between the stem and the edges of the top hole **18** in the pedestal **3**, as well as through the passageway bore **22** and the orifice **27**.

During the pressure filling operation, an adapter **32** is fitted over the top wall **16** of the container to interconnect the pressure filling device with the valve assembly. The tip may be removed or left on the stem during the filling operation. The propellant flowing from the pressure filling device acts against the portion of the gasket **17** which is exposed by the central opening **18** in the pedestal **3** to move the gasket away from the valve stem **21**. The eyelet is moved downward against the force of spring **14** by either propellant pressure or mechanical means in the adapter until the shoulder **23** engages ribs **11**. The valve body and gasket remain in this position until the container is filled and the pressure filling device is removed, or external fluid pressure is released. Then the spring **14** returns the valve body and the gasket to their sealing positions, as shown in FIGURE 1.

Constructions embodying the present invention insure that the annular gasket **17** is positively returned to the sealing position about the valve stem **21** and with the rim of the valve body in sealing engagement against the underside of the gasket, after the container has been pressure filled. This is accomplished by providing a structure which supports the sealing gasket radially inward of the rim **25** and off of the rim so that when the pressure on the outer exposed surface of gasket **17** is released, the valve body will positively and immediately return gasket **17** into sealing engagement with stem **21** and rim **25** against gasket **17** to prevent the flow of fluid between container **2** and annular chamber **24**. An exemplary structure incorporating this feature is shown in the drawing as including a

plurality of radially extending spoke-like lands **40** located within the annular groove **24**.

The height of the lands is axially less than the depth of the groove so that the top of the lands is below the top edge of the sealing rim on the valve body. This prevents the lands from interfering with the sealing action of the rim against the end surface of the gasket during normal sealing and closure of the valve.

The lands preferably are disposed in a radial direction with the inner ends thereof at the stem. The radial length of the lands, however, is less than the radial dimension of the groove so that there is a continuous, unobstructed annular portion of the groove immediately adjacent to the radial inner surface of the sealing rim. By providing these proportions, aerosol material entering the groove prevents breaking of the seal at any point along the edge of the rim and can pass along the groove until it reaches a position of access to the interior orifice. The orifice **27** is disposed at a point between a pair of adjacent lands so that there is a direct groove passage to the orifice from the outer annular unobstructed portion of the groove.

In the embodiment shown, the lands are formed as part of the valve body but they could be made as a separate insert if desired. The lands support the inner edge of the sealing gasket out of sealing engagement with the rim **25** and radially inward of the rim **25** when the sealing gasket is opened to admit high-pressure gas during the pressure filling operation.

The downward travel of the valve body is limited for proper support of the gasket on the lands during pressure filling by the shoulder-like top ends of ribs **11** which retain the valve body **20** adjacent gasket **17** to prevent the inner periphery of gasket **17** from sealing against the rim of the valve body and from moving into a right angular position relative to the top of the spring cup **4**. If the gasket moved to the latter position, it might catch on the rim **25** of the valve body in which case the rim would hold the gasket out of engagement with stem **21** and permit the pressurized fluid in container **2** to escape. By retaining the inner periphery of the gasket within the confines of rim **25**, the spring **14** acting on the underside of valve body **20** acts at all times to bias the gasket into its sealing position about the valve stem.

In the instant case the lands **40** are provided with a rounded annular lip **41** which provides a smooth cradle-like supporting surface for the inner edge of the sealing gasket.

As shown in cross-section in FIGURES 3, 4, and 5, the propellant, during the filling operation, flows from the annular passageway **31** surrounding the valve stem through the channels **42** between the lands **40** to the portion of the annular groove **24** adjacent the rim **25**, around rim **25** through the space between valve body **20** and valve housing **4**, and then through the spring **14** and the tube **9** into the container **1**.

The filling operation above described is not limited to the original filling operation, but may also be utilized to refill containers that have been emptied of their contents.

Although there is herein described a preferred embodiment of the invention, it will be understood that the description thereof is intended to be illustrative, rather than restrictive, as many details may be modified or changed without departing from the spirit and scope of the invention. For example, the undersurface of the sealing gasket could be provided with radial channel which would allow the spoke-like lands to be removed or replaced with a solid gasket support means and, the fluid then would be able to pass between the stem and rim **25** through the gasket grooves. Further, the particular shape and construction of the valve and valve assembly could be altered and other means could be provided for allowing fluid to flow. Also, the particular land structure disclosed is merely illustrative of many designs that could be employed.

Other equivalents will occur to those skilled in the art and it is, of course, intended to cover by the claims all such embodiments as fall within the true spirit and scope of the invention.

I claim:

1. An aerosol valve through which a container may be filled, comprising a valve housing defining an opening, valve means in said housing including a stem portion projecting through said opening, a sealing gasket closing said housing opening and having an inner peripheral surface adapted to sealingly engage the outer surface of said stem to prevent leakage therebetween, said valve means having a rim portion laterally spaced from said stem to form an annular groove between said rim and stem, means biasing said rim into sealing engagement with said gasket, said valve means defining a passageway between the annular groove and atmosphere, stop means in said valve housing for limiting movement of said valve means away from said sealing gasket, abutment means in said groove, cooperative with said stop means for limiting inward deflection of the inner periphery of said sealing gasket while the container is being filled, the sealing gasket abutment means defining a channel for the passage of fluid between the radially inner and outer portions of the annular groove, whereby the gasket will be permitted to deflect inwardly an amount sufficient to permit fluid under pressure to flow through the valve housing between the gasket and valve stem during a filling operation while insuring that the gasket is returned to the sealing position around the valve stem when the pressure filling operation is completed.

2. An erosol valve through which a container can be filled comprising a valve housing having an open top portion, a valve assembly in said housing including a valve body and a hollow stem portion projecting from the housing, a sealing gasket closing said top portion and defining an inner peripheral surface adapted to receive and tightly hug the outer surface of said stem to prevent leakage therebetween, said valve body having a rim portion laterally spaced from the stem to form an annular groove between said rim and stem, means biasing said rim into sealing engagement with said gasket, said valve assembly defining an orifice between the annular groove and hollow valve stem, means in said valve housing for limiting movement of said valve means away from said sealing gasket, abutment means in said groove, cooperative with said valve limiting means for limiting inward deflection of the inner periphery of said sealing gasket while the container is being filler, said abutment means and said gasket defining a passageway between the stem portion and the rim, whereby when fluid is directed through the valve between the gasket and stem to fill a container on which the valve is located the inner periphery of said gasket will be retained within the rim portion of said valve body and upon completion of the filling operation the biasing means will positively return the sealing gasket to its sealing position around the valve stem.

3. An aerosol valve through which a container can be filled comprising a valve housing having an open upper portion, a valve in said housing including a valve stem defining a hollow bore, a sealing gasket closing said upper portion and provided with an opening of a size to receive and seal about said stem to prevent leakage therebetween, said valve including a valve body having a rim portion laterally spaced from the stem to form an annular groove between said rim and stem, spring means biasing the rim into sealing engagement with said gasket, said valve body defining a passageway between said annular groove and said hollow bore, means in said valve housing for limiting movement of said valve body away from said sealing gasket, means for retaining the sealing gasket in place relative to said valve housing, abutment means in said groove for limiting inward deflection of the portion of the sealing gasket defining said stem opening, said abut-

ment means including a plurality of circumferentially spaced lands for supporting the inner portion of the sealing gasket radially within and out of engagement with said rim, whereby the inner portion of the gasket will be supported within the valve rim during a pressure filling operation.

4. An aerosol valve through which a container can be filled comprising a valve housing having an open top portion, a valve in said housing including a tubular valve stem portion projecting from the housing, a sealing gasket closing said top portion and provided with an opening adapted to tightly hug the outer surface of said stem to prevent leakage therebetween, said valve means including a valve body having a rim portion laterally spaced from said stem to form an annular groove between said rim and stem, spring means biasing said rim into sealing engagement with said gasket, said valve body defining a passageway between the annular groove and internal portion of said valve stem, means in said valve housing for limiting downward movement of said valve means, means comprising a plurality of spoke-like lands located in said annular groove for limiting the deflection of the inner portion of said sealing gasket, said spokes having an outer diameter less than the inner diameter of the rim and an axial height no greater than said rim, whereby the spokes will retain the gasket between the rim and step during a pressure filling operation and thus insure that the gasket will be immediately returned to its sealing position about the valve stem when the pressure filling operation is completed.

5. An aerosol valve through which a container can be filled comprising a valve housing having an open top portion, a valve in said housing including a valve stem projecting from the housing and defining a longitudinal bore, a sealing gasket closing said top portion and provided with an opening adapted to receive and sealingly engage the outer surface of said stem to prevent leakage therebetween, said valve means having a rim portion laterally spaced from said stem to form an annular groove between said rim and stem, spring means biasing the rim into sealing engagement with the gasket, said valve body defining an orifice between the annular groove and longitudinal bore in the valve stem, circumferentially spaced inwardly extending ribs in said housing having a diameter less than the outer diameter of the valve body and terminating below the top of the housing to limit the movement of the valve means away from the sealing gasket, abutment means in said groove, cooperative with said ribs for limiting inward deflection of the inner edge of said sealing gasket while the container is being filled, said abutment means and said gasket defining a passageway for the passage of fluid between the inner and outer portion of the annular groove, whereby the inner portion of the gasket will be retained radially within the rim and out of engagement therewith during the pressure filling operation and the gasket will be positively returnd to its sealing position about the valve stem after the pressure filling operation is completed.

6. An aerosol valve through which a container can be filled comprising a valve housing having an opening, a one piece valve body in said housing including a stem portion projecting through said opening, a sealing gasket closing said housing opening and defining an inner peripheral surface adapted to sealingly engage the outer surface of said stem to prevent leakage therebetween and to support said valve body for vertical or lateral displacement, said valve body defining a rim portion radially spaced from said stem to form an annular groove between said rim and stem, means biasing said rim into sealing engagement with said gasket, said valve body defining a passageway interconnecting the annular groove and atmosphere, a plurality of circumferentially spaced inwardly extending vertical ribs in said valve housing terminating short of said housing opening for limiting movement of said valve body away from said sealing gasket, abutment means disposed in said groove and cooperative with said ribs for supporting the inner periphery of said sealing gasket radially inwardly and out of engagement with said rim while the container is being filled, said sealing gasket and abutment means providing a channel for the passage of fluid between the radial inner and outer portions of the annular groove, whereby during a filling operation in which gas under high pressure is directed against the gasket to move it away from the stem to form a passage therebetween the gasket will be supported so that it will be returned to its sealing position about the valve stem by the spring biasing means when the filling operation is completed.

7. An aerosol valve through which a container can be filled comprising a valve housing having an open top portion, a valve assembly in said housing including a valve body and a stem portion projecting from the housing which stem defines an axial bore, a sealing gasket closing said top portion and defining an inner peripheral surface adapted to receive and tightly hug the outer surface of said stem to prevent leakage therebetween, said valve body having a rim portion spaced from the stem to form a groove between said rim and stem, spring means biasing said rim into sealing engagement with said gasket, said valve assembly defining an orifice between the annular groove and hollow valve stem, circumferentially spaced inwardly extending rib means in said valve housing terminating below the top of said housing for limiting movement of said valve body away from said sealing gasket, spoke-like abutment means in said groove for supporting the inner periphery of said sealing gasket inwardly of the rim during a pressure filling operation, whereby the valve body and gasket will be positively returned to their sealing positions upon the completion of the filling operation.

8. An aerosol valve through which a container can be filled comprising a valve housing having an open upper portion, a valve in said housing including a valve stem defining a hollow bore, a gasket closing said upper housing portion and having an opening of a size to receive and seal about said stem to prevent leakage therebetween, said valve including a valve body having a rim portion spaced from the stem to form an annular groove between the rim and stem, spring means disposed between said housing and valve body to bias the rim into sealing engagement with the underside of said gasket, said valve body defining a passageway between said annular groove and hollow bore whereby when the valve is moved away from said gasket fluid may flow from the interior of the valve housing to atmosphere, rib means in said valve housing for limiting movement of said valve body away from said sealing gasket, abutment means in said groove for limiting inward deflection of the portion of the sealing gasket defining said stem opening, said abutment means including a plurality of circumferentially spaced lands for supporting the inner portion of the sealing gasket radially within and out of engagement with said rim, said lands having an axial dimension no greater than said rim and defining an annular lip portion for smoothly supporting the inner portion of the gasket during a pressure filling operation.

9. An aerosol valve for use with a container having an opening at its top, a valve housing having an open top aligned with the opening at the top of the container and an opening at its bottom communicating with the interior of the container, the aerosol valve comprising a one piece valve body including a tubular valve stem portion projecting through the top of the opening in the housing, a sealing gasket closing the top of said valve housing, said sealing gasket having an inner peripheral surface adapted to sealingly engage the outer surface of said stem to prevent leakage therebetween, said valve body having a rim radially spaced from said stem to form an annular groove between said rim and stem, said valve body defining an internal orifice between the annular groove and internal portion of the valve stem, spring means urging said rim

into sealing engagement with the gasket whereby the annular groove, internal orifice, and tubular valve stem are closed off from the interior of said container, means in said valve housing for limiting inward movement of said valve means, a plurality of spoke-like lands located in said annular groove for supporting the inner periphery of the gasket radially inward of and out of engagement with said rim to permit the container to be pressure filled by forcing gas under pressure between the gasket and stem and to insure that the valve body and gasket are returned to their sealing positions when the filling operation is completed.

10. An aerosol valve as disclosed in claim 9 in which the spoke-like lands have an outer diameter less than the inner diameter of the rim and an axial height no greater than the rim.

11. A valve member for an aerosol valve having a gasket normally in engagement therewith, comprising a valve body, a stem projecting from one face of said valve body, a longitudinal bore in said stem, said stem having a radial dimension less than the radial dimension of said one face of said valve body, an orifice extending through a wall of said stem adjacent to said one face of said valve body and radial lands disposed about said stem at said one face of said valve body, said lands being adapted to engage said gasket to maintain a fluid flow channel between said valve body and said gasket during pressure filling.

12. A valve member for an aerosol valve, comprising a valve body, a stem projecting from one face of said valve body, a longitudinal bore in said stem, said stem having a radial dimension less than the radial dimension of said one face of said valve body, an orifice extending through a wall of said stem adjacent to said one face of said valve body and radial lands disposed about said stem at said one face of said valve body, said one face of said valve body having an upstanding rim at the outer periphery thereof, said lands extending from said stem towards said rim, the maximum radial dimension of said lands being less than the dimension between said stem and said rim thereby providing an unobstructed annular groove portion about the inner surface of said rim.

13. A valve member for an aerosol valve, comprising a valve body, a stem projecting from one face of said valve body, a longitudinal bore in said stem, said stem having a radial dimension less than the radial dimension of said one face of said valve body, an orifice extending through a wall of said stem adjacent to said one face of said valve body and radial lands disposed about said stem at said one face of said valve body, said one face of said valve body having an upstanding rim at the outer periphery thereof, said lands extending from said stem towards said rim, the maximum radial dimension of said lands being less than the dimension between said stem and said rim thereby providing an unobstructed annular groove portion about the inner surface of said rim, said orifice communicating between said bore in said stem and a space between a pair of adjacent lands at said one surface of said valve body.

14. A valve member for an aerosol valve having a gasket normally in engagement therewith, comprising a valve body, a stem projecting from one face of said valve body, a longitudinal bore in said stem, said stem having a radial dimension less than the radial dimension of said one face of said valve body, an orifice extending through a wall of said stem adjacent to said one face of said valve body, radial lands disposed about said stem on one of said one face of said valve body and said gasket to form radial passages providing paths for flow of aerosol material outwardly of said stem between said gasket and said valve body during pressure filling, said gasket and said valve body being normally sealably interengaged outwardly of said passages.

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LAVERNE D. GEIGER, *Primary Examiner.*

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,219,069 November 23, 1965

Clarence O. Kuffer

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 3, line 69, for "rib" read -- ribs --; column 6, line 22, after "gasket" insert -- and --; line 32, for "erosol" read -- aerosol --; line 49, for "filler" read -- filled --; column 7, line 26, for "step" read -- stem --; line 56, for "returnd" read -- returned --.

Signed and sealed this 13th day of September 1966.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents