DISPENSING DEVICE FOR AEROSOL PRESSURE CONTAINERS

Filed Sept. 3, 1965

4 Sheets-Sheet 1

Fig. 1

INVENTOR.

BERNARD RABUSSIER

ATTORNEY
INVENTOR.

BERNARD RABUSSIER

BY

DAVIS, Hoxie, Faithfull & Hapgood

ATTORNEYS
DISPENSING DEVICE FOR AEROSOL PRESSURE CONTAINERS

Bernard Rabassier, Poitiers, France, assignor to Precision Valve Corporation, Yonkers, N.Y., a corporation of New York

Filed Sept. 3, 1965, Ser. No. 489,790
Claims priority, application France, Oct. 18, 1961, 576,727; Patent 1,351,763
21 Claims. (Cl. 222—394)

This application is a continuation-in-part of application Serial No. 230,048, filed October 12, 1962.

This invention relates to improvements in hermetically sealed packages of self-propelling pressure multi-phase liquid compositions equipped with a valve assembly adapted to spray the liquids contained in said packages. More specifically, the invention relates to a particular arrangement of a dispensing device in an aerosol pressure container, wherein a portion of the liquid from each of at least two liquid phases is simultaneously released from the container to concomitantly produce a spray of very fine droplets.

Aerosol spray dispensers or aerosol containers having an aerosol tube through which the container contents exit are widely employed for the purpose of spraying a variety of products, in particular insecticides, bactericides and deodorants. In the past, formulations employed comprised an homogeneous phase consisting of the propelling agent, known as propellant (e.g., liquefied gas, such as n-butane, propane, dichlorodifluoromethane) in which is dissolved the active agent (concentrated insecticide or deodorizing product, for example). Such compositions are useful due to the fact that the active agent is soluble in all proportions in the liquefied propellant gas. The abrupt vaporization of said propellant upon discharge through the valve when the spray dispenser is actuated produces a fine spray of said active agent.

In order to reduce the cost of the composition, it has been proposed to substitute water for a portion of the propellant. The invention will be described in terms of having the active ingredient dissolved in the liquefied propellant, however, it should be understood that the converse may be employed. However, water is miscible with the liquefied propellant and it is not always possible to produce emulsions which remain stable for a considerable time. Users are accordingly obliged to shake the pressure can prior to use in order to homogenize the container contents. This is an undesirable requirement.

If the user fails to shake the active agent is only atomized or expelled after the entire water content of the pressure can has been discharged in the case where the aqueous phase is the heaviest phase. The contrary happens when the propellant is heavier than water. In both instances, the water is not functioning in its intended manner, i.e., as a carrier for the active ingredient.

It is therefore an object of the invention to overcome such difficulties, by providing an aerosol container adapted to simultaneously spray both liquid phases (water and liquefied propellant) in a homogeneous mist and without requiring a preliminary shaking.

A still further object of the invention is to provide a dispensing unit for the aerosol containers of the kind specified, which is easy to manufacture and to adapt onto said containers.

Still further objects of the invention will become apparent as the description of the invention proceeds.

The present invention is based on the discovery that, at the moment of utilization of the aerosol container, it was possible by means of a particular arrangement of the dispensing device to produce inside the eduction tube and the valve an intimate mixture of the liquids contained in the pressure can. It is thus possible to effect the fine and simultaneous atomization of both the water and the active agent in an aerosol container containing two liquid phases separated by density, one phase being formed by the water and the other by the active agent dissolved in the liquefied propellant.

In accordance with the invention, the aerosol container which contains two immiscible liquid phases of different density, namely an aqueous phase and an organic phase consisting of a liquefied propellant gas in which the active agent is present in the dissolved state, and which container is fitted with a dispensing device consisting of a spray-discharge stopper valve supplied by means of an eduction tube immersed in the liquid and open at the free end thereof, is mainly characterized in that said eduction tube of the dispensing device is provided with a succession of fine perforations extending over a distance of the eduction tube such that a certain number of said perforations are immersed in the aqueous phase while other perforations are immersed in the organic phase.

In a preferred form of the embodiment of the invention, the perforations which are formed in the eduction tube have a diameter substantially ranging between about 0.01 mm. and 1.2 mm., a diameter between 0.3 and 1 mm. being generally preferred, and these perforations are disposed over the whole length of the tube.

The accompanying drawings illustrate several embodiments of the present invention, but the construction therein shown is to be understood as illustrative only, and not as defining the limits of the invention.

FIG. 1 is a view in diametrical cross-section of an aerosol container having a dispensing device designed in accordance with the invention.

FIG. 2 is an enlarged fragmental cross-section of the valve shown in FIG. 1, said section being taken on the line II—II of FIG. 3, illustrating the valve in closed position.

FIG. 3 is a transverse section taken on the line III—III of FIG. 2.

FIG. 4 is a similar section taken on the line IV—IV of FIG. 3, but showing the valve in open position; and

FIG. 5 is a cross-section taken on the line V—V of FIG. 2.

In the example which follows below, the improvements which are provided by the present invention are applicable to a container of the aerosol dispenser type for the purpose of spraying an active product, such as deodorant, disinfectant or insecticide.

Referring now to FIG. 1, the numeral 1 designates the said container which is closed by a crimped-on cover 2 inside which is mounted the stopper valve 3 of the dispensing device, said valve being joined to an eduction tube 4 which extends downwards inside the container 1. The eduction tube 4 is of flexible synthetic material and has preferably a length which is slightly greater than the internal depth of the container 1, with the result that said eduction tube takes up a position inside said container in the manner shown in FIG. 1.

Apart from the arrangements which are especially contemplated by the invention and which will be explained below, the stopper valve 3 is of a generally known type, and accordingly comprises (FIGS. 2—4), a valve housing 5, an annular bulge 6 being formed on the top portion of said housing and the cover 2 being crimped around said annular bulge, thereby imprisoning a thin flexible sealing disc 7. The bottom portion of the valve housing 5 is provided with an extended portion in the form of a nipple 8 on which is fitting the eduction tube 4.

There is mounted in the interior of the valve housing
5 a sliding core 11 which terminates at the base thereof in a boss 12 and has an upwardly extending tubular valve stem 13 over which is fitted a head 14 forming a push-button.

There is formed between the core 11 and the valve stem 13 a neck portion 15 pierced by radial passages 16 which open into the internal channel 17 of the valve stem 13 which communicates with the exterior through a discharge orifice 18 formed in the head 14. A spring 19 is fitted around the boss 12 and is applied against radial seating members 21 of the valve housing 5.

When in the rest position, said spring 19 holds the core 11 in the top position in which the sealing disc 7 is fully applied against the annular flange 22 of the cover 2. In this position, the radial passages 16 are closed off by the sealing disc 7 and all communication is cut off between the interior of the container 1 and the exterior.

If, on the contrary, downward pressure is applied by the finger of the operator to the head 14, as indicated by the arrow F in FIG. 4, the valve stem 13 and valve core 11 are forced downwardly against the tension of the spring 19 and by this operation the inner margin of the sealing disc 7 is bent downwardly, as shown in FIG. 4, to uncover the passages 16 and thus open communication between the interior of the container and the exterior thereof by way of the eduction tube 4, passage 10, chamber 20, and thence through the opening(s) 16 into passage 17 of the valve stem to and through the discharge orifice 18.

Since the space above the liquid phases is occupied by the propellant in vapor phase, the pressure of such vapor phase causes the liquid to flow upwardly through the eduction tube 4 when pressure is applied on the stopper valve 3. The liquid follows the path which has been indicated above and when the liquid gas reaches the orifice 18, it then volatilizes and disperses the active agent in a fine spray.

In the form of the invention shown, there is further provided, at the base of the valve housing 5, an opening 35 which places into communication the vapor phase which is present above the liquid and the annular space 20 which is formed between the housing 5 and the core 11. The opening 35 (as shown in FIG. 3 and FIG. 4) is thus arranged parallel to the eduction tube 4 relatively to the radial conduits 16. When the stopper valve is actuated, the opening 35 plays the part of a gas intake. Experience shows that the gas-flow which is thus injected on the upstream side of the passages 16 into the liquid to be sprayed substantially improves the quality of the atomization.

The aforementioned components of an aerosol dispensing device and the operation thereof as described are already known per se in the case in which the pressure container 1 contains a homogeneous liquid phase which is constituted, for example, by an active agent dissolved in a liquefied propellant gas.

The particular features which are contemplated by the present invention will now be described in detail illustrating a system wherein the container contains two immiscible liquid phases.

In accordance with this invention, the eduction tube 4, in FIG. 1, is provided over the entire length thereof with two lines of perforations 31 which are equidistant and in diaphragmally opposite relation. Such perforations are of very small diameter and can accordingly be formed by means of a needle which is passed through the eduction tube 4 from one side to the other.

The diameter of the perforations plays a critical part inasmuch as said diameter is dependent on the volumetric proportions of the two immiscible liquid phases, namely the higher-density phase 32 (water, for example) and the light or lower-density phase 33 (for example, liquefied gas in which an active concentrate is present in the dissolved state).

For example, in the case of a formulation consisting of:
50% water,
40% liquefied propellant (n-butane),
10% organic concentrate (active substance dissolved in a solvent).

The former components constituting the phase 32 and representing one volume,

And the latter two components constituting the phase 33 and representing another volume, experience shows that beneficial results are obtained by providing an eduction tube having an external diameter of 4.2 mm. and an internal diameter of 2.9 mm. with two lines of identical perforations in diametrically opposite and equidistant relation, the perforations of a same line having a diameter of 0.3 mm., and a relative spacing of 5 mm.

When the eduction tube 4 is formed of plastic material (mixture of polyethylene and isobutyrene, for example) a certain swelling of the tube takes place, especially when this latter is in contact with the organic phase 33, and has a tendency to contract the perforations. Accordingly, in the case of the example given, the diameter of the perforations 33 must be 0.9 mm. at the time of piercing, this diameter being reduced as a result of swelling action to 0.4 mm. when the eduction tube is immersed in the liquid.

As far as the stopper valve 3 is concerned, other characteristic sizes in the case considered are as follows:

1 millimeter in diameter in the case of the cylindrical passage 10 formed in the nipple 8.

0.56 mm. in height and 1.3 mm. in width of chord in the case of the radial passages 16 of rectangular section.

(These sizes are thus appreciably larger than in conventional devices which in any case only have one similar passage, see FIG. 5.)

0.75 mm. in the case of the discharge orifice 18.

0.7 mm. and 0.5 mm. in length of chord in the case of the orifice 35 relatively to a diameter of 6 mm. in the case of the valve housing 5.

The discharge of the container contents occurs as follows:

When the head 14 of the stopper valve 3 is depressed, the liquid 32 rises inside the eduction tube 4, while being drawn in especially through its open bottom 30. At the same time, the organic phase 33 enters the eduction tube through the perforations 31, thereby producing a dispersion of the two liquid phases as they flow upwards inside the tube. The result thus achieved is that a mixture of the two phases 32, 33 arrives inside the annular space 20.

Under the action of the reduced pressure caused by the opening of the passages 16, a gas-flow enters the chamber 20 through the opening 35. The said gas-flow effects a complementary dispersion of the two liquid phases as these later flow towards the passages 16. The resulting mixture which reaches the discharge orifice 18 is thus in a suitable state of dispersion and the vaporization of the propellant at the outlet of said orifice results in the discharge of the aqueous phase and the organic concentrate in an atomized spray pattern of very fine droplets.

The homogeneous quality of the spray can thus be stated by visual inspection.

When the sizes and number of perforations 31 as well as the sizes of the orifice 18, 35 and the passages 16 have been suitably chosen, the result thereby achieved is the simultaneous disappearance of the phases 32 and 33 and complete utilization of each liquid phase.

It will be understood that, as the contents are expelled from the container the top level of phase 33 falls with the result that the perforations 31 are successively exposed to the vapor phase. As a result, the composition of the dispersion which is introduced to the annular chamber 20 is slightly modified in time. On the other hand, the vapor which enters the eduction tube 4 through the perforations 31 as a result and when the level of liquid falls has the effect of assisting the dispersion of the phases 32, 33 in the interior of said tube.
The present invention accordingly provides a means of dispensing compositions which correspond, for example, to the following formulations:

**Insecticide formulation—Insecticide concentrate:**

<table>
<thead>
<tr>
<th>Composition</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Pyrethrum dissolved in petroleum)</td>
<td>10</td>
</tr>
<tr>
<td>n-Butane</td>
<td>40</td>
</tr>
<tr>
<td>Water</td>
<td>50</td>
</tr>
</tbody>
</table>

**Deodorant formulation—Deodorant concentrate:**

<table>
<thead>
<tr>
<th>Composition</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Vegetable oil base)</td>
<td>5</td>
</tr>
<tr>
<td>Deodorized n-butane</td>
<td>45</td>
</tr>
<tr>
<td>Water</td>
<td>50</td>
</tr>
</tbody>
</table>

Such formulations as the above are of value inasmuch as they provide the means of producing aerosol dispensers for insecticides and other active agents which are inexpensive, require no agitation and are non-flammable. The use of water consequently not only affords a means of reducing the cost but also inhibits spray flammability of the aerosol, thus providing a considerable advantage to the user.

In these instances where it is desired to avoid or substantially reduce the gas loss during actuation, a variant to the construction described above and shown in FIGS. 1–5 may be resorted to. This variant is illustrated in FIGS. 6–11.

In the design of the perforated eduction tube according to FIGS. 1–5, the holes or perforations which are eliminated in said tube are freed from the upper liquid phase in increasing number as the level falls within the dispenser-can during utilization. In consequence, the composition of the dispersion which is discharged from the container is liable to be modified in time due to increased concentration of the gas phase. Moreover, loss of gas may become appreciable with concomitant adjustment of the propellant liquid phase resulting in alteration of the initial volumetric proportion of the liquid phases.

Finally, it can happen that the gaseous phase is drawn into the eduction tube in the form of bubbles, thus temporarily interrupting the spray discharge and also resulting in a loss of gas.

The improvement of the constructions of FIGS. 6–11 are especially characterized in that the eduction tube which extends from the stopper-valve to the bottom of the container is curved in the vicinity of said container bottom and has an extension in the form of an ascending branch, and in that the successive lateral perforations of the eduction tube are formed only in said ascending branch.

Experience has in fact shown that, by means of the arrangement just mentioned, losses of propellant in gaseous phase can thus be almost completely eliminated.

The eduction tube can be given a U-shape, at least a part of the ascending branch of the U being disposed in a substantially parallel relation to the main branch.

The curved eduction tube can either be shaped in the cold state, or in the hot state in a definitive manner or, on the contrary, said tube can be deformed elastically, in which case the ascending branch is retained by means of a fastening member or by the walls of the container.

In all cases, steps are preferably taken to ensure that the upper extremity of the ascending branch of the eduction tube is sealed off.

According to a preferred arrangement of the improvements now set forth, the eduction tube employed is of the type known as a "capillary tube" (having an internal diameter ranging between 0.3 mm. and 1.5 mm.) and is provided with one or a number of rows of equidistant perforations.

The arrangements referred to are advantageously employed in conjunction with the use of a stopper-valve of a spring type comprising a vertical flow-cavity.

By virtue of the improvements of FIGS. 6–11, compositions can be employed which contain high proportions of aqueous phase. Such formulations are obviously economically advantageous; such compositions may contain, for example, as much as 75% water.

A number of constructions which illustrate the feature of avoiding gas loss are illustrated in the accompanying drawings for FIGS. 6–11, which have been given solely by way of example without any limitation being implied, and in which:

FIG. 6 is a sectional view on an axial plane, showing a first form of embodiment of the aerosol container;

FIG. 7 is a fragmentary front sectional view on a highly enlarged scale, showing the valve head;

FIGS. 8, 9 and 10 are views in elevation on a smaller scale showing a number of different forms of embodiment of the eduction tube, the lateral wall of which has been partially broken away; and,

FIG. 11 is a perspective diagram on a large scale showing an alternative form of embodiment of the perforated eduction tube.

Referring now to FIG. 6, the reference numeral 1 designates the container of the aerosol dispenser type which is closed by a crimped-on cover 2 inside which is mounted a stopper valve 3, the valve head being designated by the reference 14. The stopper valve 3 is joined to the eduction tube 4 which is fitted over an end-piece 51 which extends downwardly from the valve body 46.

The eduction tube 4 has a downwardly extending portion 52, hereinafter referred to as the "descending branch," which extends the vicinity of the base 53 of the aerosol container and which extends beyond an elbow 54 so as to form an upwardly extending portion 55, hereinafter referred to as the "ascending branch." No perforations are formed in either the descending branch 52 or the elbow 54 and only the ascending branch 55 is provided with a succession of lateral perforations 51. The upper terminal portion of the ascending branch 55 is closed by an end-wall 58.

In the form of embodiment considered, the eduction tube 4 which assumes the shape of a U is of either rigid or semi-rigid design. In particular, the eduction tube can be fabricated of thermoplastic material with a sufficient thickness of wall to ensure that the elbow 54 can be formed by bending of a straight tube without any attendant danger of folding or pinching. For example, a material such as polyethylene is usually very suitable, although use can also be made of polypropylene, plasticized polyvinyl chloride, super-polyamides, or mixtures of different thermoplastic materials, or even a metallic tube.

As will be understood, it is important to ensure that the eduction tube 4 is compatible with the aqueous phase 32 and with the organic phase 33 which are contained in the dispenser can 1.

Depending on the material employed, the operation which consists in bending the eduction tube 4 for the purpose of forming the elbow 54 can be carried out either in the cold state or in the hot state, for example by means of a suitable former. Under the conditions which are contemplated in the example described, the said bending operation is intended to produce a substantially permanent set in the tube 4, with the result that the ascending branch 55 is self-maintained in parallel relation to the descending branch 52, as shown in the example of FIG. 6.

Experience has shown that the best results were obtained by employing tubes having an internal passageway of so-called capillary dimensions, that is to say an internal diameter within the range of 0.3 mm. to 1.5 mm. In particular, very good results have been obtained by using a tube of polyethylene having an internal diameter of passage of 1 millimeter. However, satisfactory operation can still be ensured in the case of substantially larger internal diameters which can reach, for example, 8 millimeters.

The thickness of the wall tube increases with the internal diameter and can vary, for example, between 0.2 mm. and 2 mm.

The spacing of the perforations 31 as well as the size
of these latter are not critical. However, it is advisable to ensure that the perforations 31 are sufficiently close to each other in order that the number of perforations which are immersed in each of the two phases 32, 33 should be proportional to the depth of the corresponding phase within the container 1, with a view to producing a self-regulating action which will be explained in greater detail later. In practice, in the case of equidistant perforations 31, the spacing can vary between a maximum of 15 millimeters and a distance which is as short as practical considerations will permit, taking account of the diameter of the perforations. In fact, it would not constitute a departure from the scope of the present improvements to provide perforations which are sufficiently close together to coincide and thus form thin slits 57a, 57b (as shown in FIG. 11) which are formed in the ejection tube wall and arranged successively along at least two vertical lines of said ejection tube in such a manner that the mechanical strength of the tube is not thereby impaired. By way of example, good results have been obtained in the case of an ejection tube formed of polyethylene and provided with one or a number of parallel rows of perforations having a diameter of 0.3 mm. and a spacing of 3 mm.

The stopper valve 3, which is of known design, consists of the discharge nozzle 58 which is adapted to actuate the flexible sealing disc 59 and is provided in the example considered with a valve head 14 of the type comprising a vertical flow cavity 61 (as shown in FIG. 7). Said valve head, which also is of known design, is characterized in that the internal passage 17 of the discharge nozzle 58 terminates in a slanting passage 62 which opens tangentially within the cavity 61, said cavity having a volume in the shape of a spherical cap. There is formed at the summit of said cap the spray discharge orifice 63 which is located at the bottom of a diffusion chamber 64.

In this arrangement, the valve body 5 is not provided with a gas intake as in FIGS. 1-5.

When ready for use, the aerosol container 1 is filled with aqueous phase 32 and with organic phase 33 and the dissolved active agent is present in at least one of these phases. When the valve head 14 is depressed, the said liquid phases flow simultaneously into the branch 55 of the ejection tube 4 under the action of the gas pressure and are driven along said tube. The said phases then pass through the elongated portion 54 of the tube and flow upwardly within the branch 52. A vertical flow motion (as shown in FIG. 7) is imparted to said two phases as they enter the cavity 61 and propellant vaporizes at the same time. There is thus produced a high degree of atomization of the aqueous phase, which is expelled through the discharge orifice 63 in finely dispersed particles.

It will be noted that the gaseous phase which is present within the volume 34 of the aerosol container 1 is in fact not sucked through the ejection tube 4 although the perforations 31 of the upper portion of said tube are immersed in said phase, with the result that gas losses are extremely small. This phenomenon is due to the fact that, by reason of the curved path of the ejection tube 4, the gaseous phase would have to pass through the aqueous phase 32 in order to escape, which is not possible in practice.

By virtue of the fact that losses in gaseous phase have been eliminated or substantially reduced, the composition of the dispersion is rendered more constant over the period of usage.

Moreover, the above-noted phenomenon makes its possible to reduce the quantity of liquefied propellant which is introduced in the formulation and consequently to increase the proportion of water.

It is therefore made possible to utilize formulations which, for 100 parts of liquid, consist of:

- 30 to 35 parts of n-butane or other liquefied propellant.
- 60 to 65 parts of water.

In addition, the utilization of an ejection tube 4 having equidistant perforations 31 in the ascending branch 55 of said tube, while not essential, is nevertheless preferred for the following reasons.

Assuming that the aerosol container 1 has a cylindrical shape and that the openings in the ejection tube are equidistant, if the volume of one of the phases 32 or 33 is substantially greater than that of the other phase, a distinctly larger number of perforations 31 will be immersed in the phase of greater volume, with the result that the quantity of liquid drawn off will also be larger. The relative proportion of the two phases will therefore be reproduced in the mixture of phases conveyed to the level of the stopper valve 3. The system thus automatically regulates the proportion of liquid dispersed, this being achieved also by virtue of the fact that the gaseous phase is not drawn through the ejection tube and by virtue of the fact that any danger of depletion of one of the phases relatively to the other is thus considerably reduced. This self-regulating process makes it possible in particular to employ compositions having a preponderant aqueous phase.

There is thus obtained a concomitant emptying of the aqueous phase and of the organic phase, using a formulation such as the following:

- 20% n-butane or like gaseous propellant,
- 75% water,
- 5% active substances and solvents.

The converse also holds true and a concomitant emptying is also obtained when using a formulation such as the following:

- 50% n-butane or like gaseous propellant,
- 45% water,
- 5% active substances and solvents.

Both of the foregoing examples are in any case not given in any limiting sense.

Any increase in the proportion of propellant ensures a finer dispenser but results in a more costly product.

Any decrease in the proportion of propellant produces a contrary action. By permitting a wide selection of possible formulations, the present improvements also make it possible to adapt the aerosol dispenser to each particular case of utilization.

In the embodiment of FIG. 8, the ascending branch 65 is shown in this example as being directed slantwise with respect to the descending branch 52 and the upper extremity of said ascending branch is brought to bear on the wall of the container 1. The ejection tube 4 thus assumes the shape of a V. This arrangement permits the possibility of increasing the spacing of the perforations 31 along the branch 65, all other things being equal.

In the version of FIG. 9, the upper extremity 66 of the ascending branch 67 is bent back in the shape of a crook and secured by means of a tie 68 to the non-perforated descending branch 52 of the ejection tube. It is possible by means of this arrangement to make use of an ejection tube 4 fabricated of a flexible material such that the ascending branch could not remain in its own accord in the vertically upright position shown in FIG. 6. As will be apparent, the crooked extremity 66 could also be welded to the branch 52.

The ejection tube 4 could also be formed of either natural or synthetic elastomers or mixtures of elastomers and plastomers (rubber, butyl rubber, mixture of polyethylene and polyisobutylene, for example). In this case, the length of the ejection tube 4 is such that this latter has a tendency to unfold within the container 1. The tube thus assumes a sinuous shape as shown in FIG. 10 and the ascending branch 69 thereof bears on the wall of the aerosol container 1 at different places. Only the upwardly extending portion 69 of the ejection tube 4 is perforated. If the flexibility of the ejection tube 4 is perforated.
tube 4 is such that this latter would have a tendency to slide of its own accord over the walls of the container 1, it is in that case merely necessary to attach the upper extremity of the branch 69 to the branch 52 or else to provide a stop plate or like retaining means along the internal wall of the container 1.

What is claimed is:

1. Aerosol dispensing pressure container, said container containing two immiscible liquid phases separated by gravity, one of said phases being of aqueous nature and the other one of organic nature, said organic phase consisting of a liquefied propellant gas having an active agent dissolved therein, said container comprising also a dispensing device mounted thereon, said device embodying a stopper valve and an eduction tube housed within said container and having an opening at each end thereof, one of said openings being fitted on said stopper valve whereas the other one is freely open, said tube dipping into both liquid phases, and wherein said eduction tube is provided with a succession of lateral perforations longitudinally spaced on said tube between the opposite end of the tube, with some of said perforations being immerscd in said aqueous phase and others in said organic phase to permit simultaneous eeduction of the liquids of both phases while said liquids remain separated by gravity.

2. Aerosol container according to claim 1 wherein all of the perforations of said eduction tube have the same dimension.

3. Aerosol dispensing pressure container according to claim 1 wherein all of the perforations of said eduction tube have the same dimension ranging between 0.01 mm. and 1.2 mm.

4. Aerosol dispensing pressure container, said container containing two immiscible liquid phases separated by gravity, one of said phases being of aqueous nature and the other one of organic nature, said organic phase consisting of a liquefied propellant gas having an active agent dissolved therein, said container comprising also a dispensing device mounted thereon, said device embodying a stopper valve and an eduction tube housed within said container and having an opening at each end thereof, one of said openings being fitted on said stopper valve whereas the other one is freely open, said tube dipping into both liquid phases, and wherein said eduction tube is provided with at least one line of lateral perforations longitudinally spaced on said tube between the opposite ends of the tube, with some of said perforations being immersed in said aqueous phase and others in said organic phase to permit simultaneous eeduction of the liquids of both phases while said liquids remain separated by gravity.

5. Aerosol dispensing package comprising: a container having therein two stratified liquid phases of different specific gravity, one of which is a liquefied organic propellant gas having dissolved therein an active ingredient and the other one of which is an aqueous phase, said phases collectively occupying a portion of the capacity of said container, and the upper portion remainder of the capacity of the container being occupied by propellant in vapor phase, said container being provided with a stopper valve embodying a valve housing to which is attached an eduction tube dipping into both liquid phases and provided with lateral perforations longitudinally spaced on said tube to permit simultaneous eeduction of the liquids of both phases while said liquids remain separated by gravity, and the valve housing also having a perforation leading from the vapor phase to the interior of said housing.

6. An aerosol dispensing package according to claim 5, wherein the perforations of the eduction tube have a cross-sectional area within the range of 0.01 mm. and 1.2 mm.

7. An aerosol dispensing package according to claim 6, wherein the cross-sectional area of the perforation in the valve housing is approximately 6 mm.

8. An aerosol container having at least two immiscible liquid phases forming separate layers in said container, and said container having a dispensing device mounted on said container, said dispensing device comprising a valve unit and an eduction tube connected at one end to said valve unit and extending downwardly from the valve connection to the vicinity of the bottom of the container and then upwardly to the upper elevation of the liquid contents, said eduction tube having a plurality of perforations along the upward extension of the eduction tube and being without perforations along the downward extension of the tube.

9. Aerosol container as described in claim 8, wherein the eduction tube has a U-shape and at least a part of the ascending branch of the U being disposed in substantially parallel relation to the main branch.

10. Aerosol container as described in claim 8, wherein the ascending branch is opened out radially with respect to the main branch of the eduction tube.

11. Aerosol container as described in claim 8, wherein that extremity of the ascending branch which is most distant from the elowed portion of the eduction tube is joined to the main branch and secured thereto.

12. Aerosol container as described in claim 8, wherein the eduction tube is semi-rigid and wherein the elowed portion of said tube which is formed by bending has a substantially unvarying curvature.

13. Aerosol container as described in claim 8, wherein the elowed portion of the eduction tube is obtained by elastic deformation of said tube, the ascending branch being brought to bear on the walls of said container.

14. Aerosol container as described in claim 8, wherein the extremity of the ascending branch is sealed off.

15. Aerosol container as described in claim 8, wherein the internal diameter of the eduction tube is substantially within the range of 0.3 mm. to 8 mm.

16. Aerosol container as described in claim 8, wherein the eduction tube has an internal passage of the capillary-tube type having a diameter which ranges substantially between 0.3 mm. and 1.5 mm.

17. Aerosol container as described in claim 8, wherein the thickness of the wall of the eduction tube is substantially within the range of 0.2 mm. to 2 mm.

18. Aerosol container as described in claim 8, wherein the perforations which are formed in the ascending branch of the eduction tube are substantially equidistant.

19. Aerosol container as described in claim 18, wherein the spacing of the perforations is at a maximum equal to 15 millimeters and is preferably in the vicinity of 3 millimeters.

20. Aerosol container as described in claim 8, wherein the stopper-valve is provided with a spraying head in which is formed a wortical flow cavity.

21. Aerosol container as described in claim 8, wherein the initial composition of the liquid contained in said container consists, for 100 parts, of 20 to 50 parts of liquefied propellant, 45 to 75 parts of water and approximately 5 parts of active agent dissolved in a suitable solvent such as petroleum or alcohol.

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Raphael M. Lup, Primary Examiner.