Jan. 14, 1969 W. BALTZER 3,421,698

DEVICE FOR SPRAYING LIQUIDS BY MEANS OF PROPELLANT

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Fig. 1

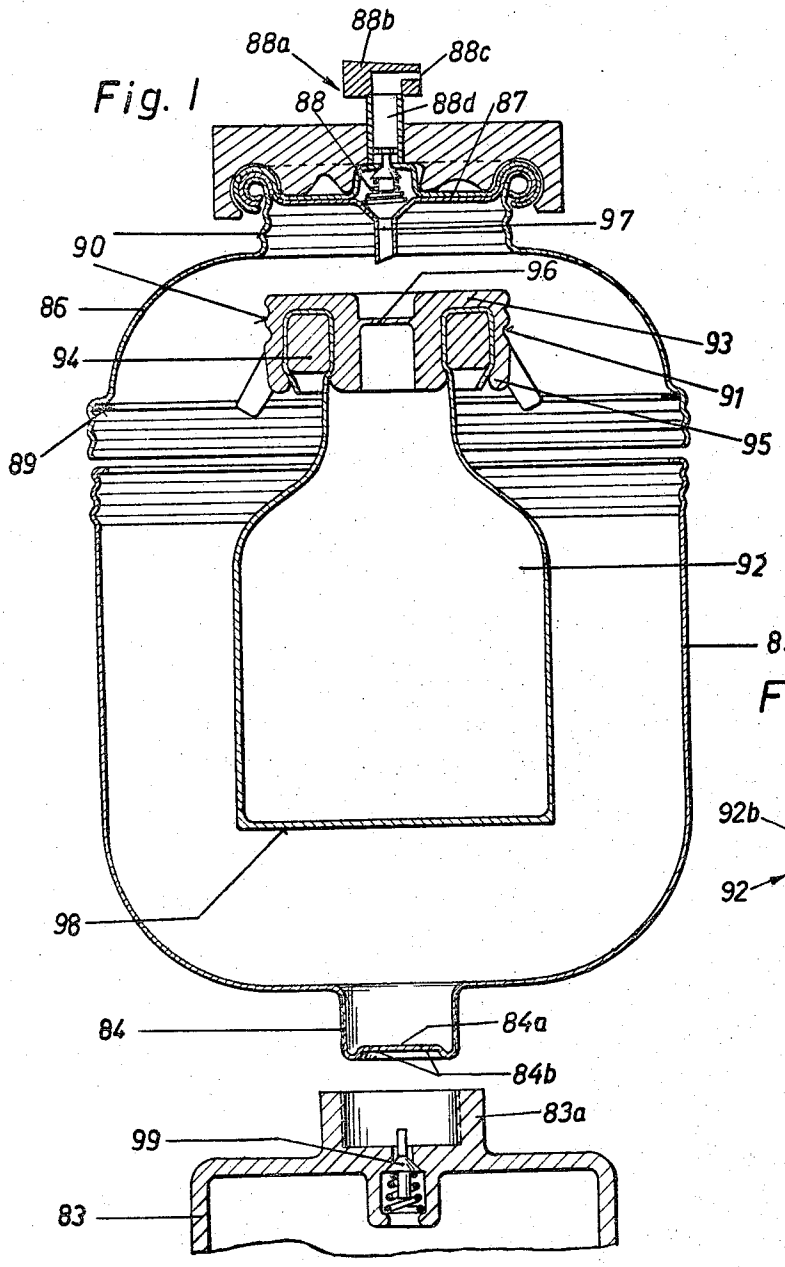


Fig. 1a

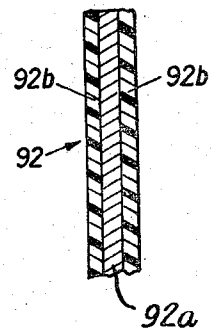


Fig. 1b

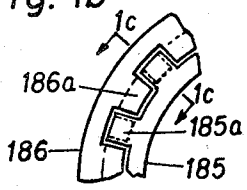
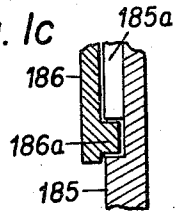


Fig. 1c



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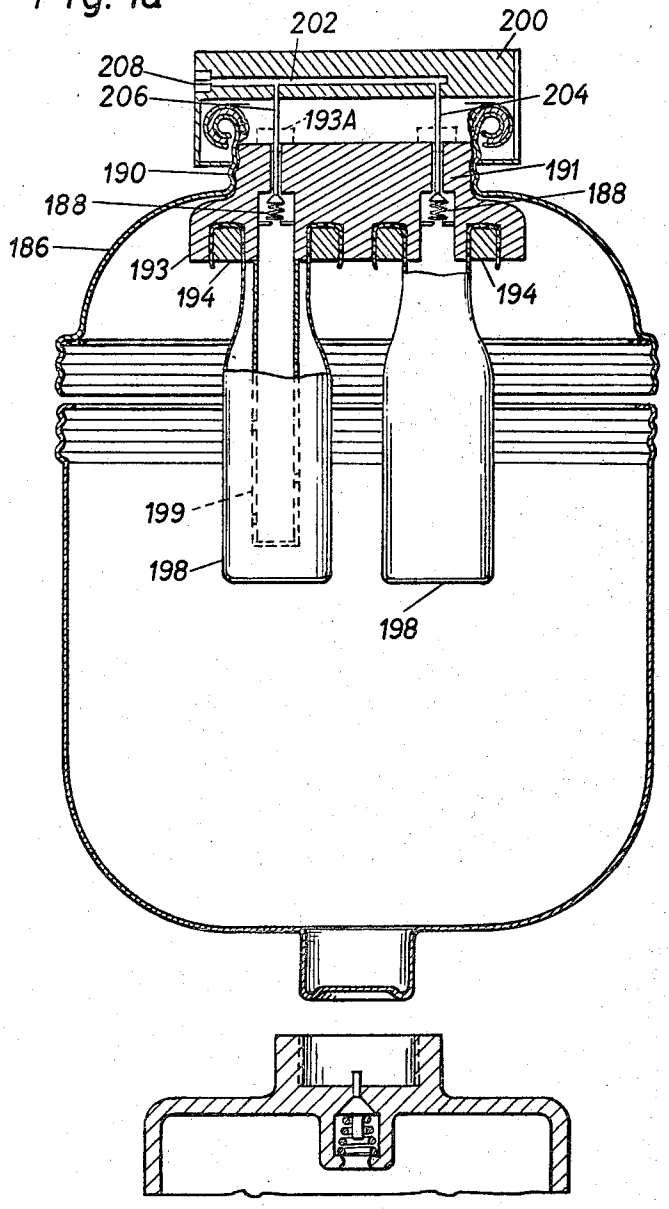
DEVICE FOR SPRAYING LIQUIDS BY MEANS OF PROPELLANT

Fig. 1d



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DEVICE FOR SPRAYING LIQUIDS BY MEANS OF PROPELLANT

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Fig. 2

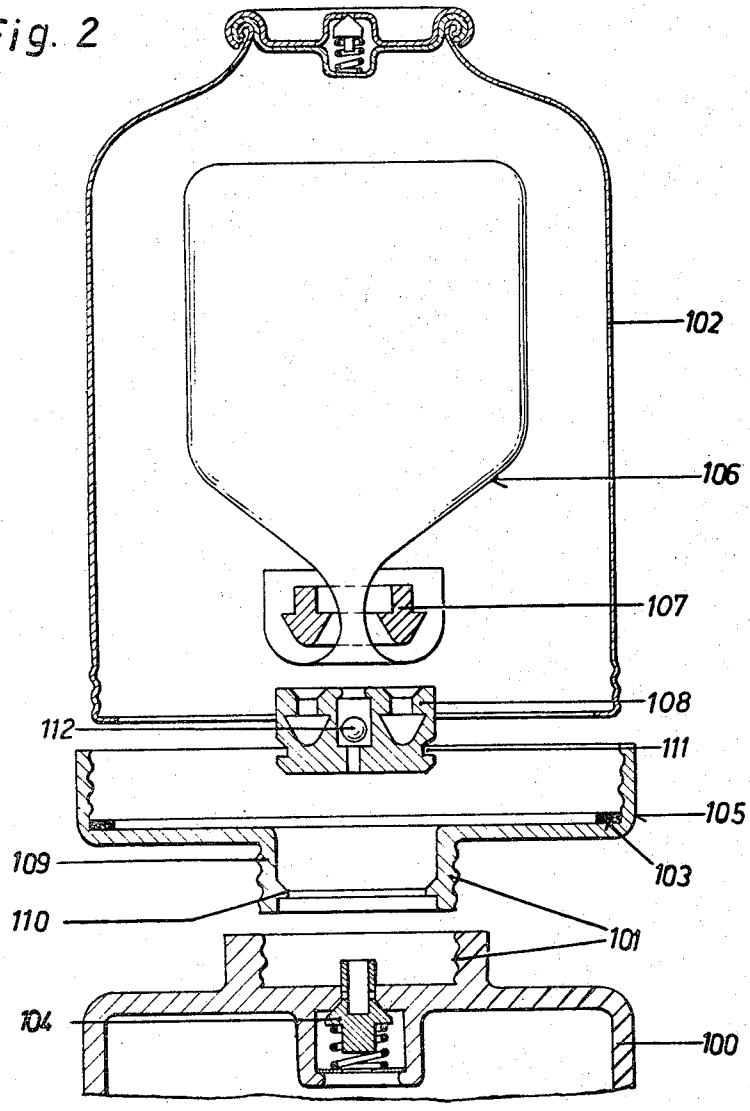

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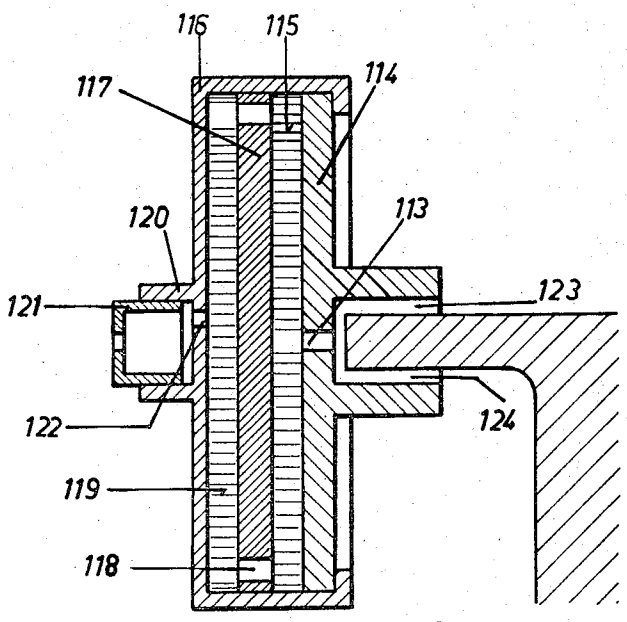
Fig. 3



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3,421,698

DEVICE FOR SPRAYING LIQUIDS BY MEANS OF PROPELLANT

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U.S. Cl. 239—304 15 Claims
Int. Cl. B05b 9/04; B05b 7/26; A62c 13/60

ABSTRACT OF THE DISCLOSURE

A spray can device for pressure propelled products employing a gas as the propellant means and comprised of a first container for the propellant gas and a second container detachably secured to the first container holding the material to be propelled or sprayed. A bag formed of a flexible foil is secured within the second container and divides it into a material zone and a propellant gas zone. A valve housing including a non-return valve is mounted in the second container for conveying the material to be sprayed from the material zone of the container. A removable closure member is secured in gas-tight relationship to the second container and includes a holding device detachably secured to the closure member for fastening the flexible foil bag in position.

This invention relates to a device for the spraying of at least one liquid with the aid of a gaseous propellant, in particular for spray materials which are compatible neither with the propellant nor with each other. For this reason, in the device which is the subject of the invention, the liquids remain separate from each other and from the propellant.

Spray bottles for spraying liquids by means of a gaseous propellant, as for example halogenated hydrocarbons commercially known as "Frigen," are well known. In these well known spray bottles the active ingredient or spraying material is introduced with the propellant into a special container, where they exist in a mixture with one another. By activating a valve according to the well known aerosol technology, the propellant which is under pressure is expelled through a spray nozzle and by this means carries with it particles of active ingredient in a very fine dispersion. By this well known method using normal spray containers it is not, however, possible to spray liquids which undergo changes in the presence of the propellant, such as certain perfumes, nor is it possible to spray several liquid materials simultaneously which react when mixed with each other. One example of this is a mixture of epoxy resins with amide hardeners, which in ordinary spray cans would react during storage and harden. Another disadvantage of the usual devices is that in spraying the propellant is forced out of the spray can, so that for spraying relatively small quantities of spray materials a relatively large quantity of propellant is required, which makes the method relatively uneconomic. Finally, by using the normal spray cans, only non-inflammable propellant can normally be used, since otherwise there is a danger of accidents. The hydrocarbons which are generally considerably cheaper, such as propane, butane etc. cannot therefore be used in these well known spraying devices.

The aim of this invention is therefore to produce a device which removes these disadvantages of normal spray bottles and permits the spraynig of liquids incompatible with each other or with the propellant, with the smallest usage of propellant itself and also to permit the use of cheaper inflammable hydrocarbons as propellants.

This device for spraying at least one liquid with the aid of a propellant according to the invention has a propellant chamber containnig propellant and at least one separate spraying material chamber, each connected with the valve housing of a non-return valve which can be opened from outside, and separated from the propellant chamber by means of a foil made from elastic material.

A number of arrangements are particularly preferable. According to the application in each case, one or other of the preferred arrangements can be regarded as particularly suitable.

A particularly advantageous design is one where at least one compressible spray material bag made from an elastic foil is fixed inside a container which is fixed detachably to a propellant container. Thereby for practical purposes the container fixed detachably to the propellant container is fitted at the bottom end with a screw thread, on a connecting union which can be screwed into the valve adaptor of the propellant container, with arrangements for opening the propellant container valve. These arrangements for opening the propellant container valve can be so constructed that either a pin is fixed to the connecting union of the upper container of such shape and size that when the connecting union is screwed in to the valve adaptor of the propellant container, it opens the propellant container valve, or that the valve body of the propellant container valve has a corresponding extension piece and the connecting union of the upper container possesses a perforated plate, so that when the connecting union is screwed in, the perforated plate presses on the projection of the valve body and thereby opens the valve. In both cases screwing the upper container on to the propellant container, which can be any appropriate commercial propellant bottle, has the consequence that by this means propellant can flow into the upper container, insofar that this is not filled up with the filled spray material bag.

This arrangement has the advantage that after the elastic spray material container or containers has been emptied with the aid of the propellant—by which means the propellant bottle is only partly consumed, as the propellant normally only penetrates the upper container—the screwed on upper container can be removed and replaced with a new one containing further spray material. By this means the propellant bottle can be used for spraying a number of spray material refills, so that the propellant is used up quantitatively.

By means of this spray material device the spray material chamber can be connected in various ways to the non-return valve mainly situated at the upper end and, for example, in one suitable method is moulded or welded on to the valve housing of the return valve, or made fast subsequently by cementing or welding.

Evan though this device may completely fulfill normal requirements and possesses very considerable advantages compared with all known spray devices, it still has the disadvantage that after the emptying of the spray material chamber or bag, the entire container connected to the propellant bottle, including the non-return valve and usually also the spray head at the upper end, must be thrown away and only the propellant bottle can be further used for spraying other materials. Moreover, it requires expensive equipment for filling the spray material through the non-return valve at the upper end of the container. An especially favourable form of construction is therefore provided by a spray device which allows not only the propellant container to be re-used, but also the container connected detachably to the propellant container, including the non-return valve and the spray head and which solely requires that at the most the emptied spray material bag must be exchanged for a refill. Moreover, with this especially favourable form of construction

a spray material bag can be used, which does not have to be filled through the non-return valve at the upper end of the container, but which can be filled from the bottom end of the bag and after filling, can be sealed by welding or similar methods.

In this particularly favourable spray device, a container detachably connected to a propellant container possesses a gas-tight raisable lid or base which can be removed from the container and a retaining device for the foil which is detachably fixed into the lid or base, the retaining device consisting of two circular parts fitting into one another, between which the edges of the foil are fixed.

For practical purposes the retaining device possesses a circular part with an annular groove which is connectable to the lid or base and into which a second circular part fits and is secured against movement, by which the edge of the foil is anchored between the annular groove and the inner circular part. The securing of the inner circular part into the outer one fitted with an annular groove follows roughly by this means, that the outer lower edge of the part fitted with the annular groove is indented toward the inside and after insertion of the inner circular part into the annular groove snaps into place under this edge and so secures both circular parts together.

The fitting of the retaining device to the edge of the foil is exceedingly simple and can be carried out with uncomplicated apparatus. To do this, for example, the upper edge of a bag or hose made from elastic material is pushed through the inner ring, this edge being bent outwards from above and on this the inner ring with the edge of the bag drawn over it is pressed into the second ring, preferably into the annular groove of the overlapping part. Insofar as the bag made of elastic foil fulfills the function of the spray material bag, the filling of the bag with spray material is carried out ideally just after the fixing of the retaining device at the bottom end of the bag, after which the bag can be sealed by welding or similar methods.

After the bag is fixed into the retaining device, filled and sealed, the retaining device is affixed to the lid part and, for this purpose the lid part and the retaining device are preferably fitted with a screw thread, so that the retaining device can simply be screwed into the lid part. Alternatively, on the inner side of the lid part an annular groove can be provided into which locks a circular shoulder on the outer side of the retaining device, in which case the insertion of the retaining device into the lid part is carried out by pressing it in until the circular shoulder locks into the annular groove. Obviously other methods of fixing are also possible and lie within the invention. Thus the retaining part can, say, be fitted with one or more annular grooves and the lid part with one or more projecting shoulders.

After the retaining device with the spray material bag fixed on to it has been fastened into the lid part, the lid is then placed on the container and fixed there in a gas-tight manner. For practical purposes this can be done with a screw connection or bayonet fitting. Also in this case, however, other equivalent methods of fixing can be used. A sealing ring in the lid part is a suitable means of maintaining the connection between lid part and container in a gas-tight condition.

By means of the development of the spraying device described above, by which means one or more spray material bags can be inserted into a lid part detachably connected to the container, one obtains spray cans, where after spraying of the entire spray material has been completed only the bag or bags with the attached retaining device needs to be changed, whilst the container including the container lid and the propellant bottle can be reused. In this case one can thus bring on to the market filled spray material containers with attached retaining device, without the other parts of the device.

By a similar method to that described above, the bag of elastic material can also be attached to the bottom end of the container connected detachably to the propellant container, but in this case the bag cannot be filled with spray material, since it serves to receive the propellant from the propellant bottle. With this form of construction, one thus obtains refillable spray devices, in which no parts need to be renewed at all. After spraying the spray material situated in the upper part of the container, the bag still filled with propellant is released from the propellant inlet by unscrewing the container from the propellant bottle, when the base of the container is unscrewed and the container is filled with fresh spray material in an inverse position. The base is then once more screwed on or made fast in another way, when the device, after screwing the container on to the propellant bottle, is once more ready for use.

According to the means of attaching the bag to the lid part or base of the device, spray devices for different purposes can be obtained. The advantages in all cases remain that the container with its attached non-return valve and spray head together with the propellant bottle, can be used over and over again after the spray material has been sprayed. Where the filled spray material bag is attached to the lid part of the container before use a sealed bag is employed. This seal can, for practical purposes, be achieved either by the retaining device having no opening, or by it having a central opening sealed with a plug. Where the retaining device has no opening, this can be produced before insertion into the lid part by piercing with a sharp object. In this case, however, the retaining device is ideally fitted with a central weakened zone, which is pierced by an arrangement, say, a pin, attached to the inner side of the lid part, when the retaining device is screwed into the lid part. In that case where the retaining device screws into the base, it is best fitted with an unsealed central opening, since in this case the superposed container and not the bag is filled with spray material.

The two circular parts fitting into each other can be of quite different types, whereby for fixing one part opposite the other, one circular part can be fitted with, say, shoulders and grooves, which take into grooves and shoulders on the other part.

In attaching the bag to the base of the container, the retaining device which is for practical purpose cup-shaped in construction, can, say, admit a ball, which according to its shape obstructs or reduces the outflow of the propellant in to the bag when the propellant bottle is removed. Also in place of such a ball all other equivalent non-return valves can be used for this purpose.

In other arrangements according to the invention at least one spray material chamber, preferably a spray material bag, can be fitted directly in a propellant container fitted in turn with a propellant inlet valve. As in the case of a container connected detachably to a propellant bottle, as described above, in this case also a bag made of elastic material can either assume the function of the spray material chamber and thereby, say, be connected with the valve housing of the upper non-return valve, or, if appropriate, be fixed in the upper flanged edge of the propellant container; or the bag can also be fixed to the lower edge of the propellant container, or on the propellant inlet valve on the bottom part. In the latter case the bag of elastic material obviously serves as a propellant chamber and not as a spray material bag, whilst the spray material is filled into the container itself. In a further arrangement, an elastic membrane which is fixed in the propellant container in such a manner as to divide this container into a spray material chamber and a propellant chamber, the membrane being secured, say, in the middle of the container on the periphery. This arrangement can in certain cases be more suitable, since it is above all cheaper to manufacture, but it does not enable the propellant bottle to be used over and over again for several spray material fillings.

In all the forms of construction according to the inven-

tion the spray material chamber can advantageously have a riser connected either permanently or detachably to the valve housing, which, however, should preferably not have an opening at its lower end, as is normally the case, but which has its lower end sealed and holes at the sides. Such risers serve principally to prevent the contents of the spray material bag from settling in the upper part of the device in front of the non-return valve during spraying, which enable residue to remain in the bag, which can no longer be sprayed out. Since the foil of elastic material which separates the spray material chamber from the propellant chamber must be impermeable to the propellant as well as not being subject to attack by the spray material, it has proved particularly suitable to prepare the foil from at least two layers joined together, of which one is aluminium and the other plastics. Particularly favourable are foils constructed of three layers, in which an aluminium foil in the middle is covered on both sides with a plastics foil, which can suitably be made from polyethylene, Hostaphan, Cellophane or suchlike. By this means one obtains elastic foils which on the one side are completely impermeable to the propellant and any other filling material and on the other, remain resistant to chemical attack and possess high elasticity.

The spraying devices according to the invention, independentlv of the special form of construction of the upper end, advantageously contain at least one valve housing with a movably located valve body in it mounted in the direction of the container axis and with a spring underneath the valve body braking upwards against the valve body in a sealing bed, and with a spray head lying along the upper side of the valve body, movably located in the direction of the container axis and opening the valve when moved toward the inside of the container.

In particular, spraying devices according to the invention have been found to be suitable for the simultaneous spraying of at least two liquids which have to be kept apart in the device because they are incompatible with each other or react with each other and which can only be brought together just in front of the spray nozzle. For this purpose the preferred form of construction of the spraying device according to the invention possesses at least two spray material bags each connected to the valve housing by means of a non-return valve and a spray head with channels leading from each valve housing on the inside of the spray head to a spray nozzle, whereby the spray head is in this way connected to the valve bodies, or lies on them, so that with axial movement of the spray head in the direction of the valve body, all the valve bodies are moved from their sealing position to their non-sealing position.

These spraying devices with several spray material containers make it possible, in addition, to fill one of these spray material containers with an additional propellant, so that a propellant-spray material mixture emerges from the spray nozzle. Preferably, however, the spray nozzle of the spray head employed is a well known vortex-type nozzle, so that pure spray liquid can be sprayed instead of the propellant-spray material mixture.

The special design of the spray heads can be widely varied so that the concept of the invention covers all designs which feature canals on the inside of the spray head leading from the valve housings to a common spray nozzle.

A particularly preferred form of construction for such a spray head according to the invention possesses in addition a mixture device in the spray head, which mixes intimately with one another the two spray material components to be sprayed, before they enter the vortex nozzle. This is particularly advantageous in the case of certain substances such as are used in the manufacture of foamed polyurethanes. This additionally incorporated mixing device according to the invention consists of two plano-parallel plates held in position one against the other by means of a detachably fixed cap, these plates possessing a large number of projections on at least one of the plate surfaces, so that one of the plates possesses a central opening and the other of the two plates an opening in the region of the periphery for the spray material to pass through and the cap featuring an approximately centrally fitted opening connecting the inside of the cap with a nozzle, preferably a vortex-type nozzle. When such a mixing device is used the two liquids meeting one another in the spray head flow roughly through a central opening through the first of the two plates, where they are diverted toward the periphery of this plate and by flowing through the intermediate spaces between the projections are intimately mixed with each other. The mixture then flows through the openings situated in the region of the periphery of the second plate, flows through the intermediate spaces between the elevations of the second plate away from the periphery toward the middle of the plates and issues from there into the vortex-type nozzle. Flowing between the intermediate spaces between the teeth, bristles or other projections of both plates has the result that both spray material components undergo an eddy circulation on their way to the nozzle and so become intimately mixed with each other.

For practical purposes the two plates equipped with bristles or teeth are held together with the aid of a fixing or screwing cap, whereby the cap can carry a connecting union at the same time, into which the vortex nozzle can be inserted. The discs can be made of metal, plastics or other suitable material. A mixing device of this type has the advantage that when the fixed on or screwed-on cap is removed, both discs are easily removed from the spray head and can be cleaned, if a reaction of the two spray material components should take place betwesen the discs after the spraying operation has been interrupted, as is the case when spraying foam-type polyurethanes.

Preferred embodiments of the invention will now be described by way of example with reference to the accompanying drawings, in which:

FIG. 1 shows an exploded vertical cross-section through a construction of a container with a removable lid and a changeable spray material bag;

FIG. 1*a* is an enlarged partial detail view of the spray material bag;

FIGS. 1*b* and 1*c* are enlarged partial detail views of an alternate embodiment for securing the lid section to the container;

FIG. 1*d* is an alternate embodiment of the arrangement shown in FIG. 1;

FIG. 2 is an exploded vertical cross-section through a refillable spraying device with a removable base section; and

FIG. 3 is a vertical cross-section through a mixing device, which can be inserted in a spray head.

In FIG. 1 an upper container **85** is being connected to the propellant bottle **83** with the aid of a screw connection. This upper container possesses a lid section **86** with a valve adaptor **87** containing a non-return valve **88** fixed on it. On the valve adaptor **87** is a spray head which has not been shown in the diagram.

The sealing ring **89** serves to maintain the screw connection between the container **85** and the lid section **86** gas-tight.

The retaining device **91** for the spray material bag **92** is inserted in the lid section **86** with the aid of a screw connection **90**. This retaining device **91** consists of an outer circular section **93**, in which fits an inner circular section **94**, so that between these two parts, the upper edge of the bag **92** is secured. The lower edge **95** of the section **93** snaps into place under the inner circular section **94**, so that both sections **93** and **94** are fixed to each other. At **96** the outer circular section **93** has a thin-walled zone which is penetrated by the pin **97** when the retaining device **91** is screwed on to the lid section **86** with the aid of a thread **90**.

The spray material bag **92** consists of a hose of suitably elastic material, which, after fixing of its upper edge in

the retaining device, is filled from the back end **98** and afterwards sealed by welding as shown in FIG. 1*a*, the elastic material forming the bag **92** consists of a middle layer **92***a* formed of a metal foil, such as aluminum, and the outer layers **92***b*, coating the opposite surfaces of the metal foil, are formed of a plastic material **92***b*.

After the retaining device **91** has been screwed into the lid section **86** and the lid section **86** has been screwed on to the container **85**, the assembled container is then screwed on to the propellant bottle **83**, whereby valve **99** is opened and propellant can issue out of the propellant bottle **83** into the container **85**. Extending downwardly from the container **85** is a sleeve-like projection **84** closed at its lower end by a wall member **84***a* which, in the assembled arrangement, extends into a sleeve **83***a* in the upper end of the propellant bottle **83**. The wall **84***a* has openings **84***b* offset from its center, and the propellant gas issuing through the valve **99** of the container **83** passes through the openings **84***b* into the portion of the container **85** surrounding the flexible bag **92**. Various means, well known in the art, can be positioned within the container **85** at the openings **84***b* for sealing the openings when the spray can is in use. When the non-return valve **88** is actuated the pressure of propellant compresses the spray material container **92**, so that the spray material issues out of the spray head **88***a* which comprises a cap **88***b* with a nozzle **88***c* communicating through the passageway **88***d* with the non-return valve **88**.

An alternative method of securing the lid section **186** to the container **185** is shown in FIG. 1*b* in which a bayonet construction joint is employed. At the location of the joint between the container **185** and the lid section **186** an outwardly extending section **185***a* on the container is provided with spaced outwardly directed projections and a similar but inwardly directed section **186***a* is formed on the inner surface of the lid section **186** whereby the inwardly directed projections on the lid section **186** pass through the spaces between the projections on the member **185***a*. As shown in the dashed lines in FIG. 1*b*, after the lid section **186***a* passes downwardly through the section **185***a* of the container **185** it is twisted or rotated a distance equal to the width of one projection and is locked within a slot **185***b*, see FIG. 1*c*, by a bayonet type joint to the container.

In FIG. 1*d* an alternate embodiment of the spray can shown in FIG. 1 is provided where a pair of flexible bags **18** are secured to a retaining device **191** which, in turn, is engaged by means of a screw connection **190** to the lid section **186**. In this arrangement, the flexible spray material bags **198** are secured into the retaining device **191** by means of the inner circular sections **194** which fit into the grooves formed in the outer circular sections **193**.

A stand pipe **199** is secured to the retaining device **191** and extends downwardly into one of the flexible spray materials bags **198**. The stand pipe **199** is closed at its lower end and is provided with openings **199***a* along its sides for admitting material from the bag into the stand pipe for eventual discharge from the valve in the upper end of the container. Mounted on the lid section **196** of the container is a pair of a non-return valve **188** each of which is aligned above one of the spray material bags for admitting materials from the bag to the spray head **200**. The spray head contains a main passageway **202** and branch passageways **204**, **206** communicating with the valves **188** at the outlets from the bag **198**. When the spray head is depressed, it depresses the valves **188** and the material issues from each of the spray material bags through the branch passageways **204**, **206** into the main passageway **202**, and then is sprayed through a nozzle **208** in the spray head.

FIG. 2 shows another construction according to the invention. In this a base section **105** with a sealing ring **103** is screwed on to the container **102** with the aid of a screw connection, the container **102** being fitted as in FIG. 7 at the upper end with a valve adaptor and a non-return valve. Before the base section **105** is screwed on to the container **102**, however, the bag **106** first has its edge pushed through the inner circular part **107** and bent over the edges of the latter. Thereafter the inner circular part **107** is pressed into the outer circular part **108**, whereby the edge of the bag **106** is secured between these two parts. After this the retaining device of the bag **106** so assembled is pressed into the lower connecting union **109** of the base section **105**, until the shoulder **110** engages in the annular groove **111**.

After the retaining device has been firmly fixed in the base section the spray material is filled into the container **102** in a tilted position and the base section **105** is screwed on to it. The container filled and assembled in this way is then, by means of a screw connection **101**, screwed to the propellant bottle **100**, whereby the valve **104** opens and propellant can flow into the bag **106** as soon as the non-return valve at the upper end of the container **102** is opened by means of a spray head not shown in the drawing. The spray material can then flow out under the pressure of the propellant.

When the spray material is consumed, the assembled container can be removed from the propellant bottle **100**, the ball **112** preventing too rapid streaming out of the propellant from the bag **106**.

FIG. 3 shows a mixing device in conjunction with a schematically represented vortex nozzle of well known type. In this arrangement of the spray head the exit end of the spray head, in which the two canals **123** and **124** meet, is extended by a circular plate **114** situated perpendicularly to the outlet opening which has a central opening **113** and bristles or teeth **115** on the side facing away from the spray head. By means of a cap **116** which can be fixed or screwed on to plate **114**, a second plate **117** of equal size with openings **118** in the region of the periphery, and bristles or teeth **119** on the side facing away from the spray head, is pressed on to the bristles or teeth **115** of plate **114**. The cap **116** possesses a connecting piece **120** in which the vortex nozzle **121** is inserted. The connection between the interior of the spray head, or if appropriate of the mixing device, and the vortex nozzle is made through opening **122**.

The spray material components which meet each other in front of opening **113** proceed through this opening **113** into the space between the two plates **114** and **117** and stream through the interstices between the bristles or teeth **115** to the periphery of plate **114** and thence through the opening **118** and the interstices between the bristles or teeth **119** to the opening **122** and from there into the vortex nozzle **121**. While the two components are proceeding through the interstices between the teetth or bristles **115** and **119** an intimate mixture of the components takes place.

I claim:

1. A spray can device for pressure propelled materials employing a gas as the propellant means and arranged to contain a replaceable materials unit, the device comprising a container having an opening therein, a removable closure member secured in gas-tight relationship with the opening in said container, a flexible bag having an opening therein, said flexible bag disposed within said container and dividing the interior of said container into a separate material zone located within said bag and a gas propellant zone disposed about said bag, a holding device located within said container, said flexible bag attached at its opening to said holding device, said holding device having a passageway therethrough arranged to be sealed by an openable member whereby prior to use in said container the combination of said flexible bag, said holding device and the openable member form a sealed replaceable materials unit, said holding device and flexible bag detachably secured to said closure member for positioning the flexible bag within said container, a valve housing including a non-return valve mounted in said closure

member and communicating with the material zone within said flexible bag, and means mounted on said container adapted for detachably securing said container to a source of propellant gas for supplying propellant gas to said propellant zone for discharging materials from said flexible bag when said valve communicating with the material zone within said flexible material is opened.

2. A spray can device, as set forth in claim **1**, wherein the closure member is secured to said container by means of a screw connection.

3. A spray can device, as set forth in claim **1**, wherein said closure member is secured to said container in gas-tight relationship by means of a bayonet-type connection.

4. A spray can device, as set forth in claim **1**, wherein said holding device is detachably secured to said closure member of said contanier by means of a threaded connection.

5. A spray can device, as set forth in claim **1**, wherein said valve housing comprises a valve body mounted within said valve housing for movement in the longitudinal direction of said container, said valve body having a spring arranged for pressing the valve body upwardly into a sealing position, and a spray head mounted exteriorly of said container in contact with the top of said valve body whereby in depressing the spray head in the direction of the longitudinal direction of the container, the valve is opened permitting material to be sprayed from the material zone within said container.

6. A spray can device, as set forth in claim **1**, wherein a standpipe is disposed within the material zone in said container and is in communication with the non-return valve of said valve housing.

7. A spray can device, as set forth in claim **6**, wherein said standpipe is closed at its lower end and has a number of lateral bores along its length.

8. A spray can device, as set forth in claim **1**, wherein said flexible bag comprises at least two layers disposed in intimate surface contact with each other, one of said layers consisting of a metal foil and the other said layer formed of a plastic material.

9. A spray can device, as set forth in claim **8**, wherein the flexible bag is comprised of a layer of aluminum foil covered on both sides by a layer of plastic material.

10. A spray can device, as set forth in claim **1**, wherein at least two flexible bags containing material to be sprayed are positioned within said container secured to said holding member and in communication with the valve housing therein, a separate non-return valve in said valve housing communicating with each of said flexible bags, a spray head mounted on said container in communication with said valve housing and having a passageway with branch passageways extending therefrom communicating with each of said separate non-return valves, a common spray nozzle in said spray head at the outlet from said passageway, said spray head arranged for movement in the longitudinl direction of said container whereby upon depressing said spray head said non-return valves are opened admitting material to be sprayed from said separate flexible bags into the passageways in said spray head for mixture therein and subsequent discharge from said spray nozzle.

11. A spray can device, as set forth in claim **10**, wherein said spray head comprises a pair of spaced parallel plates, a first one of said plates having an inwardly directed surface located at the point of confluence of the passageways from said separate flexible bags, said first said plate having a centrally positioned opening for admitting material therethrough from said bags to the space between said plates, the second of said plates having a number of openings disposed near its outer peripheral edge, and said spray nozzle having an opening therethrough located opposite the central portion of said second plate, at least one of said plates having projections extending normally from its surface into the adjoining space, whereby material flowing from said flexible bags passes through the centrally disposed opening in the first of said plates then travels laterally between the plates passing through the projections on the surface of the plate outwardly to near the periphery of the second of said plates where it passes through the openings therethrough and is then directed inwardly passing through the projections on the surfaces of the second of said plates to the opening into said spray nozzle.

12. A spray can device, as set forth in claim **1**, wherein said holding device comprises a first annular part fitted in closely fitting engagement within a second annular part with the opening of said flexible bag secured between said first and second annular parts.

13. A spray can device, as set forth in claim **12**, wherein said second annular part is detachably secured to the closure member in said container and has an annular groove therein, said first annular part fitted within the annular groove in said second annular part and the opening of said flexible bag fitted into the annular groove and secured in place by the opposed surfaces of said first and second annular parts.

14. A spray can device, as set forth in claim **12**, wherein said second annular part has a transverse section extending across the opening therethrough, and said transverse section having a centrally weakened punchable zone therein.

15. A spray can device, as set forth in claim **12**, wherein a stopper is positioned within the opening through said second annular part and is adapted to form a closure for the opening.

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