

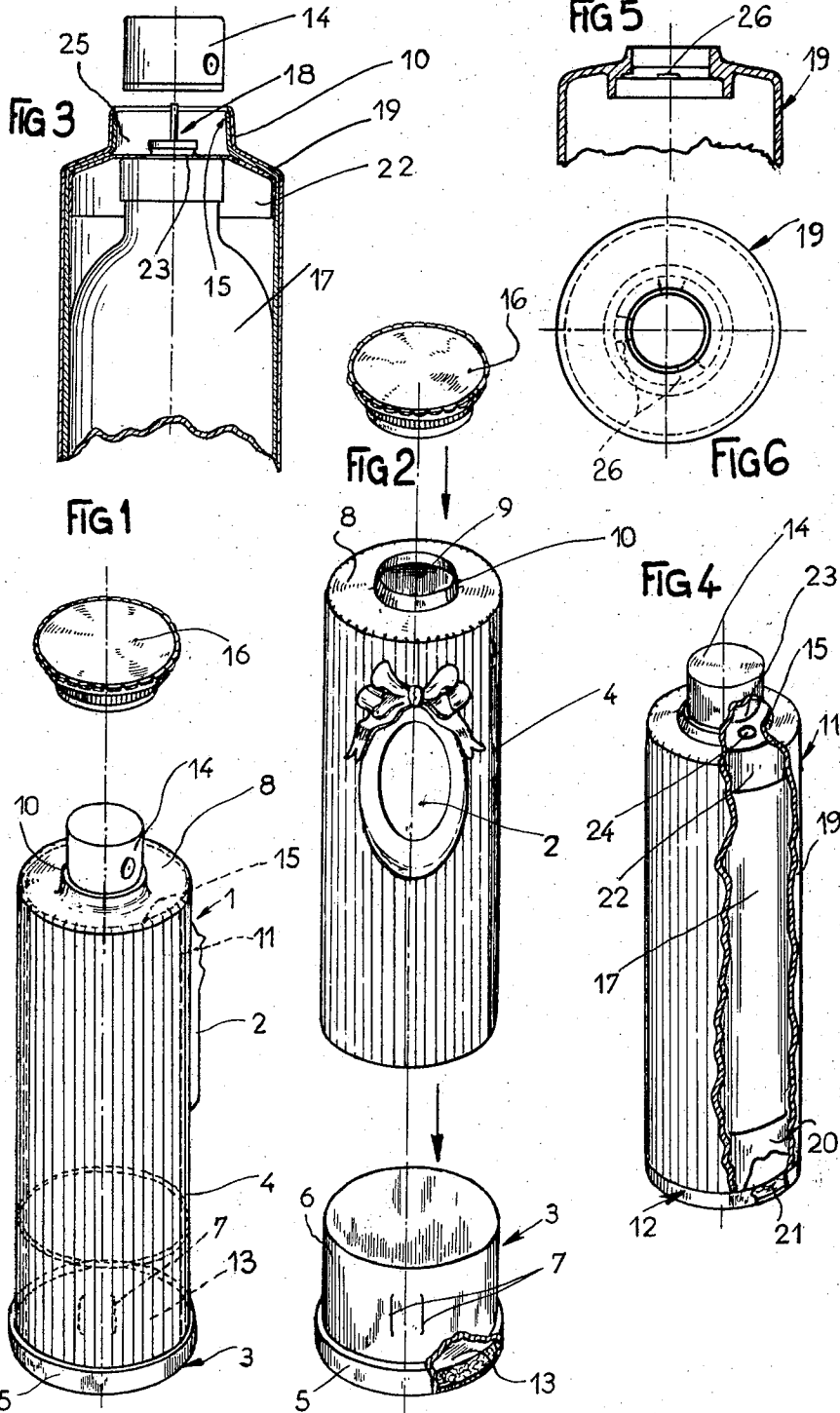
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AEROSOL ATOMIZER AND ITS REFILL CONTAINER

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**AEROSOL ATOMIZER AND ITS REFILL  
 CONTAINER**

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 1 Claim. (Cl. 222-183)

The present invention is concerned with rechargeable aerosol-type atomizers adapted more particularly for spraying perfumes, toilet waters, shampoos, etc.

Atomizers of this general type are already known commercially and comprise as a rule an outer casing or sheathing for improving the appearance of the device, in which is fitted a detachable refill containing the liquid to be atomized and a gas under pressure, said casing being equipped at its top with valve means.

A small orifice is formed in the upper face of said casing to permit the passage of this valve and the latter, after the refill has been properly located therein, emerges through this orifice from the casing. A diffuser head is then fitted on the valve externally of the casing.

In these atomizers the external casing or sheathing does not correspond exactly in shape to the refill, for a certain clearance must be provided to facilitate the fitting and removal of the refill which, in addition, must preferably have rounded forms to withstand the pressure of the gas contained therein, whilst the casing has sharp edges in general. Under these circumstances, the refill must be more or less wedged inside the casing.

This result is obtained by forming the aforesaid orifice for the passage of said valve with dimensions corresponding substantially to the diameter of the valve stem or knob fitted therein, when the refill is in its operative position. Therefore, the dimensions of this orifice are necessarily very small.

These atomizers are attended by various drawbacks.

Thus, more particularly, the mounting of the refill in the casing is a delicate operation. The valve must be presented exactly in alignment with the small orifice formed in the casing, otherwise the valve will hit the edges of this orifice and release a jet of perfume or other product which will spill on the user's hands or in the casing and is thus definitively lost.

When the refill has been properly fitted in position, the user must fit the diffuser head on the valve. To do this the diffuser head must be depressed and this movement is also most likely to release another untimely jet of perfume or other product.

Moreover, the synthetic films usually applied on the glass surface have a poor appearance in general, and in addition they suffer from the attack by certain liquids, notably the perfumes used in the device.

It is the essential object of this invention to provide an atomizer of the aerosol type whereby all the drawbacks listed hereinabove are avoided, this atomizer being remarkable notably in that said refill or cartridge is provided with an attached diffuser head so as to constitute a unitary structure adapted and ready to operate as such, said casing being designed with a view to permit the fitting of said refill or cartridge without removing said diffuser head or any other component of the refill.

According to a typical feature of this invention, and to a specific embodiment thereof, an orifice formed at the top of said casing is adapted to receive said diffuser head therethrough, so that this head emerges from the casing when the refill is fitted therein.

Thus, with the atomizer of this invention, to fit a refill or cartridge constitutes an extremely simple operation.

It is not necessary to accomplish any delicate handling for fitting the diffuser head since it is already attached

to the refill, and as this head is left on the refill body when the latter is introduced into the casing, any risk of improper handling is definitely precluded.

This invention is also concerned with a refill or cartridge for atomizer, which is remarkable notably in that it comprises a diffuser head attached to a flat base and consists of a protective sheath enclosing a vessel containing in turn the liquid to be atomized which is kept under pressure by a cushion of compressed gas.

Thus, the refill of this invention can be used independently of any apparatus, device or sheathing intended to improve its appearance while eliminating any danger arising from its use, since it is already provided with a double-walled structure. Moreover, the protective casing may have a pleasant or aesthetic appearance, and be made of metal or other substance not attacked by the perfumes or other products to be atomized.

Other features and advantages of this invention will appear as the following description proceeds with reference to the accompanying drawing in which:

FIGURE 1 is a perspective view showing an aerosol-type atomizer constructed according to the teachings of this invention, with the cap removed.

FIGURE 2 is an exploded view showing the outer casing separately.

FIGURE 3 shows on a larger scale and in axial section the upper portion of the apparatus.

FIGURE 4 is another perspective view showing a refill or cartridge, with parts broken away.

FIGURE 5 is a fragmentary axial section showing the upper portion of refill casing, according to an alternate embodiment, and.

FIGURE 6 is a plan view from above of the casing of FIGURE 5.

The atomizer according to this invention comprises an external or appearance casing or sheathing 1 of any adequate or desired configuration, for example cylindrical, as shown, on which ornaments and an escutcheon 2, if desired, may be reproduced in order to impart a luxurious appearance to the assembly. The casing is provided with a detachable bottom 3 retained by frictional contact or screw engagement in the lower portion of the body 4 of this casing. This bottom 3, in the example illustrated, has a flat base 5 and an overlying sleeve 6 in which ribs, notches or outer threads 7 are formed. These ribs, notches or threads co-act with the inner surface of the casing body 4 to keep the bottom 3 in position.

However, according to a preferred embodiment, the base 5 of this bottom has dimensions slightly greater than those of the lower portion of the body 4 so as to form a shoulder engaging, in the assembled condition, the lower edge of the body 4.

An orifice 9 for example of circular configuration is formed through the upper face or top 8 of the casing; preferably, in case the casing has a geometrical configuration comprising two planes of symmetry, this orifice is centered on the intersection of these planes. This orifice has its edges raised to form a shallow collar 10 tapering somewhat towards its upper edge.

Housed within this casing 1 is a refill or cartridge 11 containing the liquid to be atomized and the propellant gas.

As shown in FIGURES 1 and 3, this refill has outer dimensions slightly inferior to the inner dimensions of the casing and bears through its base 12 on a washer 13 of flexible or elastic material fitted in the bottom 3; it is provided at its top with a diffuser head 14, of cylindrical configuration in the example illustrated; this diffuser head 14 is formed at its base with a shoulder or flange 15 having dimensions corresponding to those of the tapered portion of collar 10 so as to fit therein with

the head 14 emerging above the collar 10. If desired, the diffuser head 14 is provided with a detachable cap 16 adapted to receive the head 14 in its cavity and to fit on said collar 10.

The refill 11 can be fitted very easily in the casing 1. The bottom 3 of the casing 1 is firstly removed, and then the refill 11 is introduced into the body 4.

The refill slides along the inner walls of the body 4 and finally the diffuser head 14 registering with the orifice 9 and having dimensions slightly smaller than those of this orifice penetrates without difficulty through, and is guided by, the collar 10 until it emerges completely therefrom. Then the refill shoulder 15 engages the inner wall of collar 10, thus holding the refill against axial movement. The bottom 3 is then refitted on the body 4 and the apparatus is ready for use.

FIGURE 4 illustrates the refill 11 which, being provided with an attached diffuser head secured preferably permanently on the refill, may be used separately. This refill comprises a vessel 17 containing the liquid to be atomized and the gas under pressure.

This vessel is made preferably of glass and may be coated or not with a film of synthetic material. Its corners are rounded to reduce the risks of breakage as a consequence of the pressure prevailing in this vessel; moreover, it is provided at its top with a valve 18 of known type.

The vessel 17 is enclosed in a protective sheathing or sleeve 19 of cylindrical configuration in the example illustrated, which consists of a rigid synthetic material such as polystyrene, metal, etc.

This sheathing comprises a bottom 12 consisting for example of a flat base with an overlying socket or sleeve 20 adapted to be force fitted, screwed or otherwise secured in the body of sheathing 19, after fitting the vessel 17 bearing on said bottom through the medium of a washer 21 of flexible or elastic material.

In certain cases a flanged holding washer 22 may be fitted inside and in the upper portion of the sheathing 19. This washer is formed with an axial orifice 23 adapted to receive the body of the valve 18 so as to properly position the vessel 17. This holding washer 22 is formed if desired with other orifices 24 to facilitate the escape of the propellant gas, in case of breakage of the vessel 17, and eliminate any risk of explosion.

According to a modified embodiment illustrated in FIGURES 5 and 6, the vessel 17 is wedged directly in the upper portion of the sheathing 19.

Vent holes 26 are also provided for similarly discharging the gas in case of breakage of the vessel 17.

On top of the sheathing 19 an axial orifice 25 is formed and receives the shoulder 15 for wedging the refill in the external casing provided with ornaments or the like.

Preferably, the diffuser head 14 is slightly recessed within the aforesaid shoulder in order to conceal completely its connection with the valve.

Of course, many modifications and variations may be brought to the aerosol-type atomizer described hereinabove with reference to the attached drawings, without departing from the spirit and scope of the invention.

Thus, notably, a bottomless casing may be used, the bottom of the refill being screwed or mounted in smooth frictional engagement in the casing. On the other hand, although an atomizer of substantially cylindrical configuration has been described and illustrated herein, it will be readily understood by those conversant with the art that this invention is also applicable to atomizers of any shape.

Finally, the invention should not be construed as being limited to the forms of embodiment described, illustrated and suggested herein, as they merely constitute typical examples given to illustrate the manner in which the invention may be carried out in practice.

What I claim is:

A refill container for an aerosol atomizer comprising a protective sheathing provided with a substantially flat base and an axial orifice at its top, a vessel in said sheathing for the liquid to be atomized and for a gas under pressure above said liquid, valve means provided on the top of said vessel emerging through said axial orifice at the top of said sheathing, a diffuser head connected to said valve means, and the protective sheathing having a flange formed internally at its top, around said axial orifice, said valve means having a corresponding shape so as to be fitted from beneath in said flange, vent holes being provided in said flange for permitting the escape of gas in case of accidental breakage of said vessel.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

2,756,105	Magill	July 24, 1956
2,766,072	Commarato	Oct. 9, 1956
2,816,691	Ward	Dec. 17, 1957
2,914,222	Meshberg	Nov. 24, 1959