(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 248 755**
A2

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **87500031.7**

(51) Int. Cl.³: **B 65 D 83/14**

(22) Date of filing: **28.05.87**

(30) Priority: **03.06.86 ES 294544**

(43) Date of publication of application:
09.12.87 Bulletin 87/50

(84) Designated Contracting States:
AT BE CH DE FR GB GR IT LI LU NL SE

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(54) Pressurized container.

(57) The invention refers to a pressurized container, usable within the framework of the classic sprays, in which the content is released by the pressure exerted from outside to inside, for which purpose the container is made of an elastic material, that in recovering its original shape, causes releasing of the contents, when the corresponding valve is opened. This elastic flexible body is in the form of a tube, closed at one end and attached to said outlet valve at the other, which may also be used for filling, or the filling valve may be situated at the closed end of the tube. This tube is accompanied by an outer casing giving the container as a whole a suitable form, as well as the necessary stability, with a mass of spongy material situated between the tube and outer container, which aids in the container tube itself's recovery of shape.

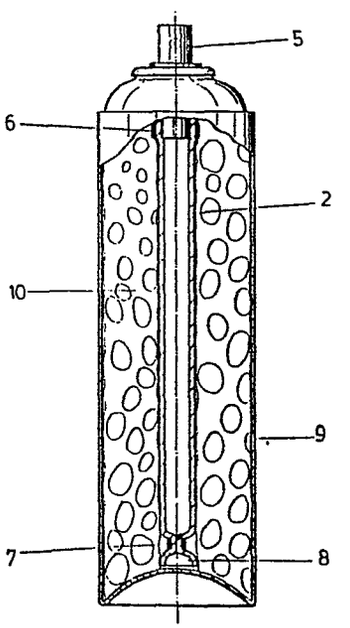

FIG.-1

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PRESSURIZED CONTAINER

DESCRIPTION

SUBJECT-MATTER OF THE INVENTION

As indicated by the title of this descriptive memorandum, the present invention refers to a pressurized container, usable in a way similar to that of the classic aerosol or spray containers, and functioning in a similar manner, but completely resolving, however, all the problems involved.

BACKGROUND OF THE INVENTION

The classic aerosol containers, as is well known, are composed of metal, aluminum, steel or iron, which as will be seen later on, must be cylindrical in shape with an outlet valve regulating the expulsion of the contents depending on the destined use of the product, either in jet, nebulization or spray form. The content of these containers is usually a mixture of three products with different purposes: a gas propellant that pushes the mixture upon a difference in pressure, a solvent to keep the entire contents in suspension, and lastly the product itself.

The main principle behind the functioning of this type of container is based on release of the contents due to pressure inside the container, or in other words, that said pressure is established "from inside to outside".

By this way of functioning, such containers have a series of limitations affecting different aspects of same.

There are size limitations, as obviously, the larger the container the greater the pressure needed inside to obtain the same effect in regard to product expulsion.

Because of their metal composition, stemming from the need to withstand the pressures to which they are to be subjected, the containers used must undergo a special treatment when they are to be filled certain products.

There are also limitations in regard to the solvents used, due to reactions or incompatibilities with the base products.

Limitations in regard to propellants also exist. In this respect it is well known that freon has a destructive effect on ozone in the atmosphere, because of which its use is forbidden in several countries.

There is also a significant limitation in regard to the percentage of the product in the container, which is not even 15% of the container's total content.

For mechanical reasons in regard to pressure, the shape of the container is limited to the cylinder, as already mentioned.

Lastly, from the consumer's point of view, it is also worth pointing out that conventional containers are not refillable.

DESCRIPTION OF THE INVENTION

The pressurized container proposed by this invention as already stated, revolutionizes the system of filling such products, fully solving all the problems and limitations mentioned earlier.

Thus, this container is based on an operating principle totally opposite of the conventional system. Whereas in classic containers, as we already said, the content is expelled by the principle of pressure exerted "from inside to outside", in the proposed container this principle is inverted and pressure is exerted from "outside to inside".

More specifically, the content is expelled by the container itself's recovery force, for which purpose the body of the container is made of an elastic material of a suitable nature to achieve the desired end.

A container made of a flexible plastic material is used for this purpose, changing shape when filled by the product itself, recovering its original form as it releases the product contained within.

Its shape in this respect may be quite varied, round, cylindrical, oval, elliptical, spherical, tapered, etc. practically without any limitation, varying equally in its interior design. Depending on the shape chosen and on filling pressures, the inner surfaces of the elastic container may be reinforced differently.

The thickness will depend on the material used, as well as on the use destined for the product contained within, and on its capacity, shape, etc. The material used, always of an elastic nature, will also vary according to the products with which the containers are to be filled. Normally, rubber, either natural or synthetic, plastic or any of its components or compounds, with such physical elastic properties allowing recovery of the original shape, are used and required for correct user or applicatic of the new system.

The container itself shall be provided with a conventional spray valve, and the container's connecting outlet to the valve may be used for filling, or another aperture, with a closable end, may be incorporated for the same purpose.

In any case, the container obtained is such that the product involved will not require the classic complementary additives, such as propellants and solvents, as it is released by the container's simple recovery of shepe when the appropriate outlet valve is pressed.

Naturally, in order to give the container this ability the container itself shall be embedded in a casing, cylindrical or prismatic in shape, or any other, provided with a stable resting base and a connecting outlet for the valve, which shall in turn be affixed to the container itself.

Complementary to this, as another of the invention's features, the space between the container itself and this outer casing is foreseen to be occupied by a spongy mass of expandable material, obtaining not only complementary thermal insulation, but also protection of the inner elastomer, giving body to the unit as a whole.

It also avoids the "clapper" or "bell" effect that may be caused by the tube's striking the inner surfaces of the outer container.

DESCRIPTION OF THE DRAWINGS

To accompany the present description and in order to aid in better understanding of the invention's features, forming an integral part of same, attached is a single sheet of drawings of an illustrative and non-restrictive nature, showing the following:

Figure 1: Shows a side elevation diametral view of a pressurized container, made for the purpose of this invention, appearing empty, that is to say, prior to pressurizing, in one of the many possible forms the present invention may appear.

Figure 2: Shows a side elevation quarter section view of the same container shown in the preceding drawing, only now pressurized or filled.

Figure 3: Shows lastly another side elevation quarter section view, in this case only affecting the outer casing.

PREFERED MAKING OF THE INVENTION

One can see in these drawings how the proposed pressurized container of this invention is based on the use of an elastic body 1, as the container itself, preferably of rubber, latex or any other suitable material, whose features conform with the degree of elasticity required by the type of product used to fill the container in each case, and more specifically, by the manner of expulsion of same. The container represented in these drawings consists of a simple cylindrical tube 2, which upon receiving pressure inside from the product 3 during filling, undergoes a notable deformation, affecting its elasticity, forming the big bulding area 4, where product's filling mainly takes place.

The top end of body 1 is attached to the corresponding valve 5, through the corresponding outlet, by clamp 6 which assures hermetic coupling of these two elements, or by any other conventional means, whereas its lower end is closed off, also hermetically, by another clamp 7, or also by any other means, thereby allowing tube 2 to be closed at said end at the expense ot its own material.

It is also possible, as we said earlier, that the end of the container 8, opposite the ingoing end from valve 5, may lack the choke ring 6 and in its place have a closure device that operates, for example, by a valve, allowing filling through this end, instead of filling through valve 5 itself situated at the other end.

In order to give the whole container a suitable appearance, consistency and stability, the group of elements described is accompained by a convering casing 9, corresponding in size to part 4 of the container, which it is to accommodate when 4 is in the state of maximum deformation, as shown in Figures 2 and 3. Said casing 9 may be of any material and any shape, encasing the group of elements connected to valve 5, in order to facilitate handling of the whole container.

It is also foreseen that the space between the container 4 and the casing 9 be filled with a mass 10 of spongy material

which from the state of emptiness shown in figure 1, is capable of being compressed during filling of the container, to the position shown in figure 2, and expanding elastically. This spring back effect applied to the container itself 4, obviously increases the operating effectiveness of the later.

From the described structure, it can be inferred that the pressurized container proposed by this invention does not require a propellant, thereby avoiding the polluting effect of the conventional aerosol type containers.

In the vast majority of cases, solvents will also not be necessary, with the obvious advantages this implies.

The container's capacity is considerably increased by allowing direct filling of the base product without propellants or solvents, assuring a 400% increase in capacity for a given outer container size.

From an economic viewpoint, its cost is 65% less than a conventional spray of similar capacity.

It allows using any type of product in pure form, without pollution problems because of the materials used.

It also allows any shape of size, because of the concept itself, depending only on the products and their market acceptance, without any limitation, either, in regard to the type of valve used.

The container may be encased by a rigid covering, such as the one illustrated in the attached Figures under reference 9, made of, for example, hard plastic, paper, carton, cloth, etc. It is also possible to directly cover the container itself, accompanying the latter in its deformations.

The protective material 10 may be injected or introduced into the empty space described earlier, before or after filling the elastomer tube. In the first case, during filling, the inner tube exerts pressure on the spongy material, compressing it and its recoverability, although small, adds to the elastomer's pressure on the contents.

Lastly, problems stemming from the explosive nature of classic containers are eliminated.

CLAIMS

1. PRESSURIZED CONTAINER, essentially featured by its being composed of a container in itself, of an elastic nature, that is flexible and preferably tubular, closed at one end, and at the opposite, the corresponding valve allowing the product's expulsion under pressure is hermetically connected, having foreseen said valve's use as well for filling of the container, during which the container body changes shape, producing continuous pressure on its contents, due to the tendency to recover its original shape.

2. PRESSURIZED CONTAINER, according to claim 1, featured by a valve for filling, charging and recharging the container, attached to the opposite end of the elastic, flexible tube where the outlet valve is situated.

3. PRESSURIZED CONTAINER, according to earlier claims, featured by an elastic, deformable body or container itself, made of rubber, latex, plastic or any other suitable material offering the elastic deformation feature during the process of filling and subsequent recovery of this original shape, as its contents are being emptied.

4. PRESSURIZED CONTAINER, according to earlier claims, featured by its outer casing, covering the elastic and deformable body, giving the whole container an adequate outer appearance, as well as adequate stability, providing an outlet valve affixed to said

casing and as applicable, a filling valve, with the added special particularity, that the space between said casing and the elastic body is filled with a spongy material, capable of contracting during the process of filling the container, with elastic recovery properties, aiding the elastic body or container itself, in pressurizing the contents and its capacity to expel the latter.

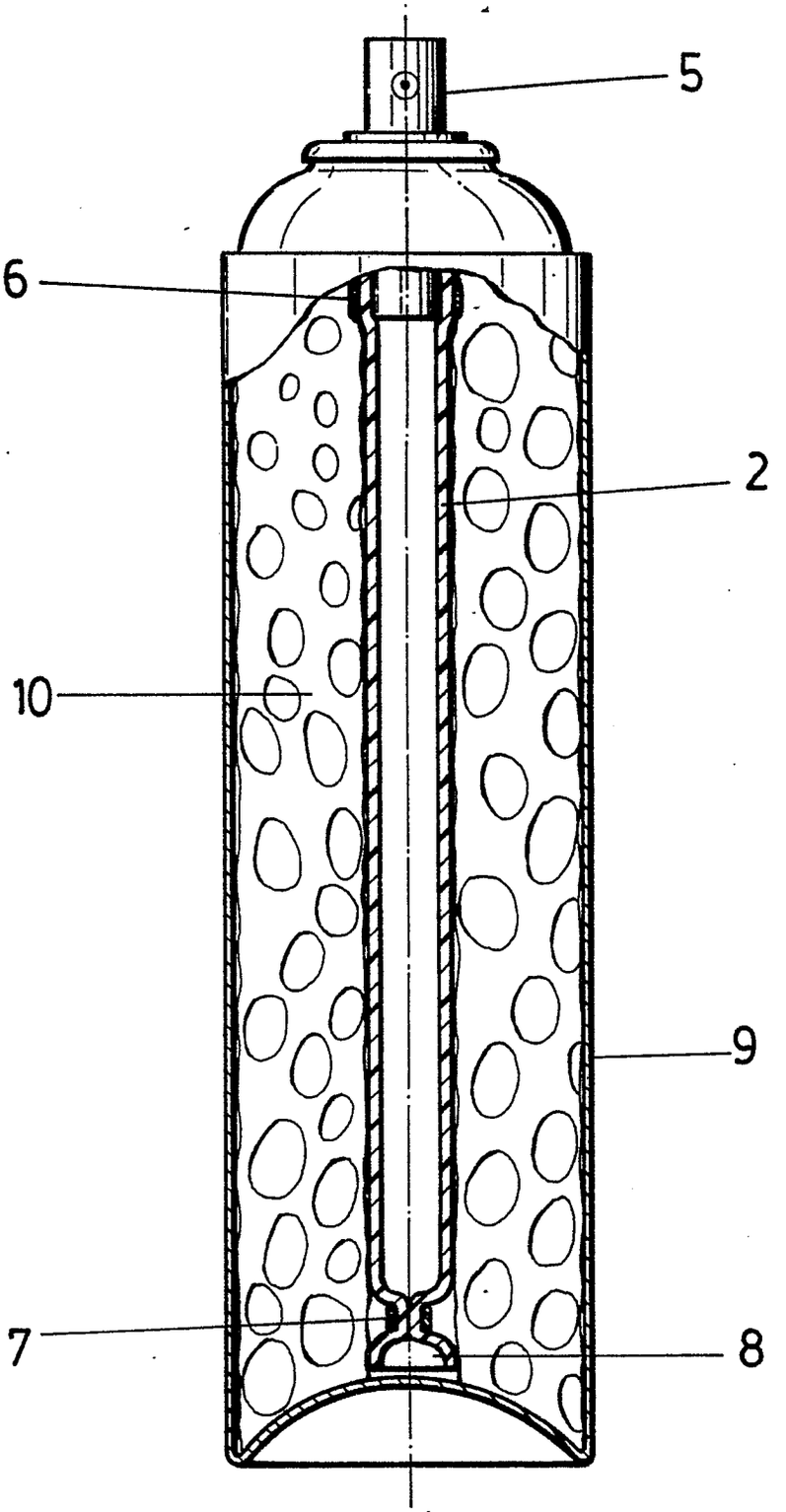

FIG.-1

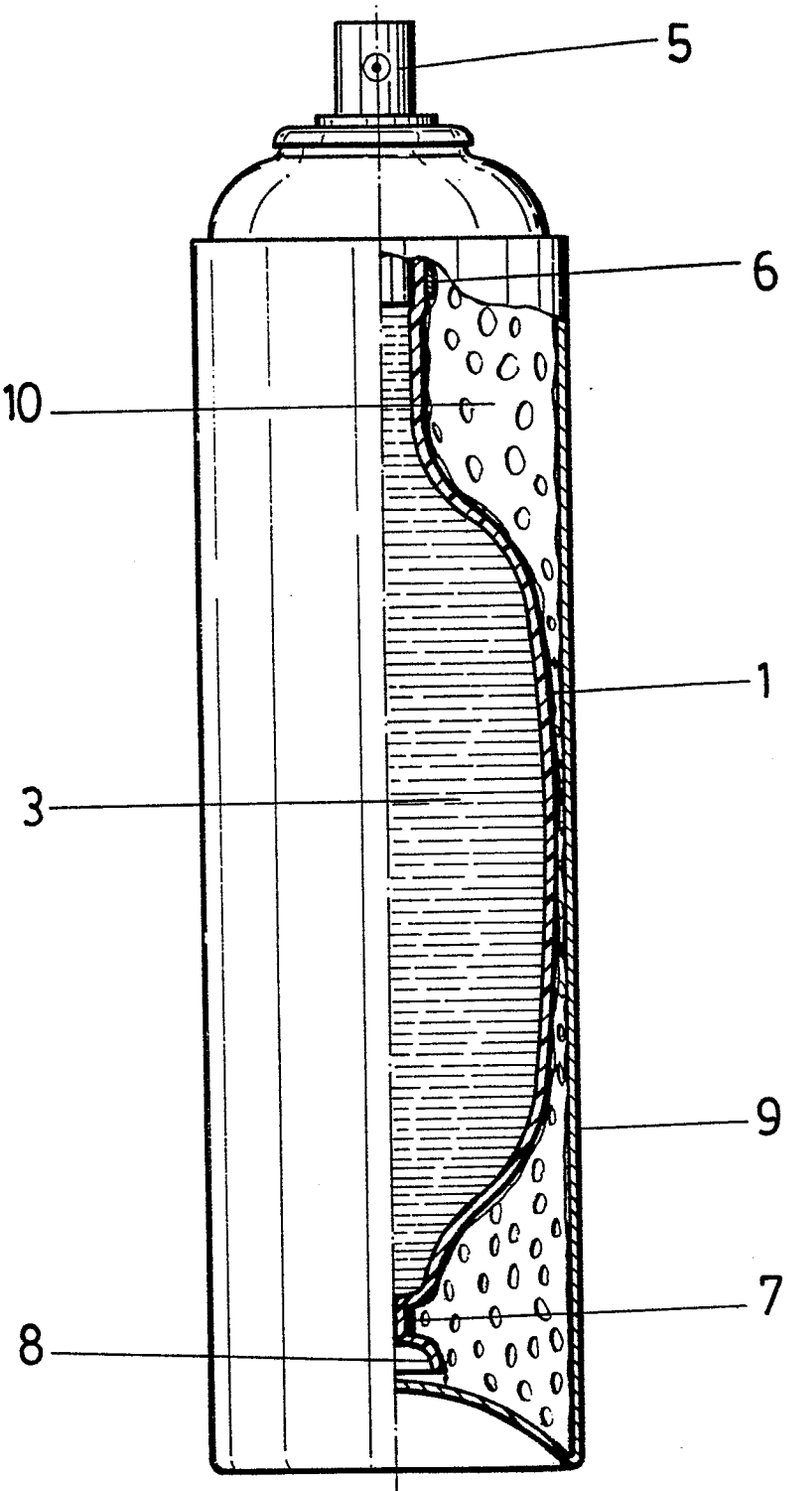

FIG.-2

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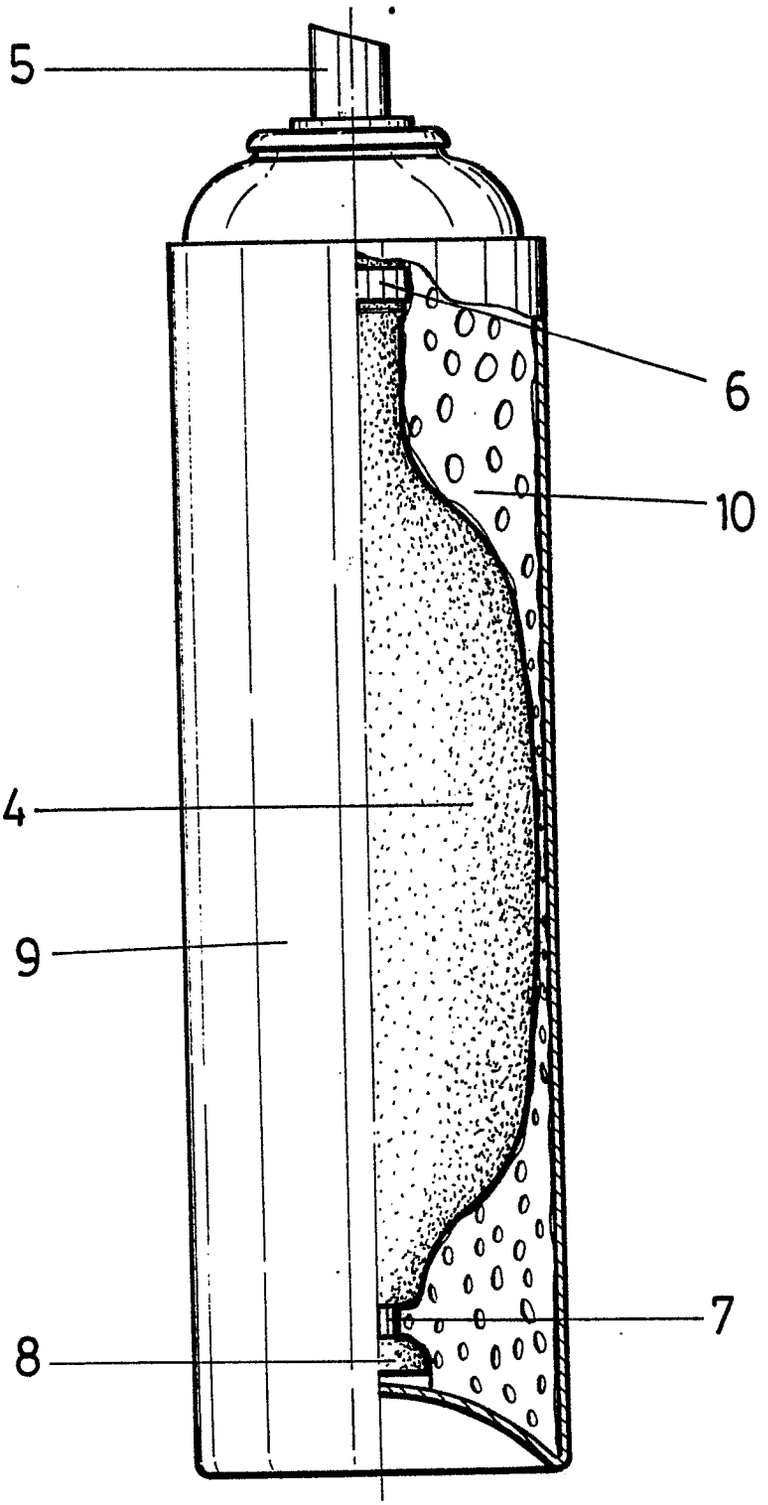

FIG.-3