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Unit including a dispensing device and a fire protection element

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(71) Applicant(s)

L'Oreal

(72) Inventor(s)

Issartel, Eric

(74) Agent/Attorney

Griffith Hack, Level 3 509 St Kilda Road, Melbourne, VIC, 3004

(56) Related Art

DE 1895546 U

US 2937698

DE 10258743

FR 2822650

US 4566588

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DESCRIPTIVE ABSTRACT

UNIT INCLUDING A DISPENSING DEVICE PROTECTED BY A FIRE-PROOFING ELEMENT

The invention discloses a unit (100) including:

- at least one product dispensing device (10) including a container holding the product to be dispensed and a propellant gas, together with a valve enabling the product to be dispensed when it is actuated; and
- a fire protection element (20) at least partially surrounding the device, the protective element including at least one textile layer.

Figure to be published with the abstract: Figure 3

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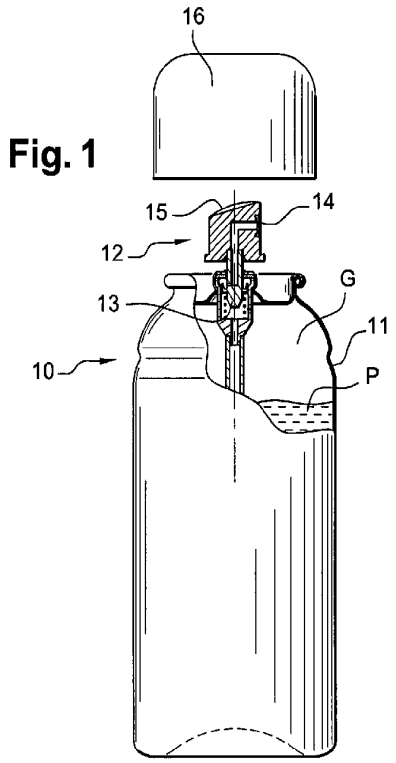

Fig. 1

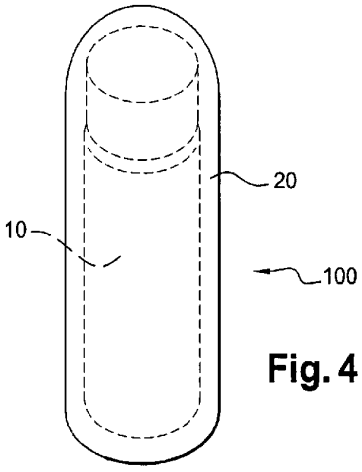

Fig. 4

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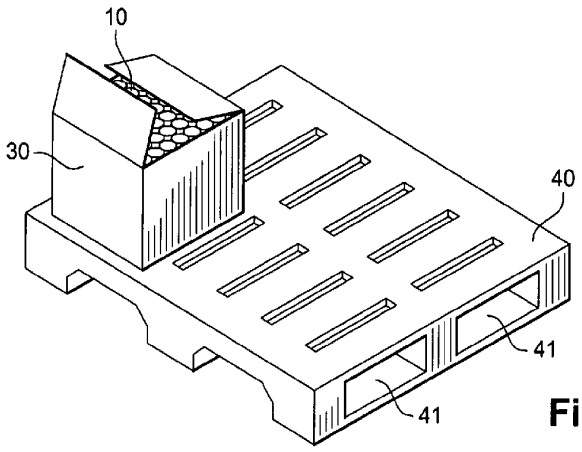

Fig. 2

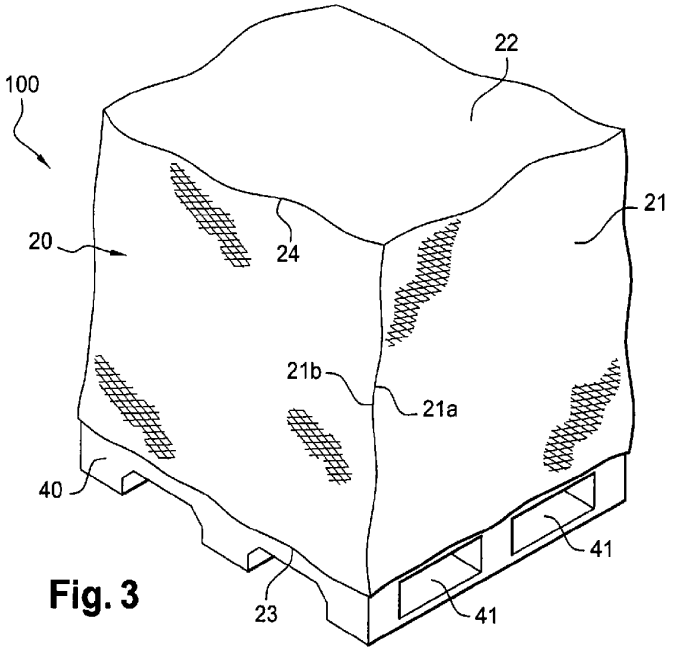

Fig. 3

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AUSTRALIA

Patents Act 1990

COMPLETE SPECIFICATION

STANDARD PATENT

Applicant(s):

L'OREAL

Invention Title:

UNIT INCLUDING A DISPENSING DEVICE AND A FIRE PROTECTION ELEMENT

The following statement is a full description of this invention, including the best method of performing it known to me/us:

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UNIT INCLUDING A DISPENSING DEVICE AND A FIRE PROTECTION ELEMENT

The invention discloses a unit including at least one pressurised dispensing device and a fire protection element.

Pressurised dispensing devices of the aerosol type contain gases under pressure which may be flammable. This is true of dimethyl ether, butane, isobutane, and also propane.

Before being distributed to stores, such devices are stored on pallets in a relatively large number. Such devices are already very well protected, in particular by their own structure, and also by the systems surrounding them. The areas in which the dispensing devices are stored are in effect equipped with sprinklers to spray the devices in case of fire and to prevent the fire from spreading.

However, it is desirable to further improve the protection of the pressurised dispensing devices, for example in the case where fire breaks out in proximity thereto. In such an eventuality, the flames generated by such a fire are liable to spread in an extremely violent and rapid manner. Furthermore, the handling of pallets by lift trucks equipped with a fork can cause piercing of the pressurised devices which may result in bursting and projectile expulsion of the pressurised devices exposed to the flames. There is a need to further protect the pressurised dispensing devices.

According to the invention, these objects can be achieved by proposing a unit including:

- at least one product dispensing device including a container holding the product to be dispensed and a propellant gas, together with a valve enabling the product to be dispensed when it is actuated; and

- a fire protection element at least partially surrounding the device, the protective element including at least one textile layer.

By using a fire protection element including at least one textile layer, i.e. which has a mesh structure, the protection against fire is improved.

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In effect, by virtue of its inherent properties or the treatment to which it is subjected, the protective element protects the device against heat and flames when a fire spreads in proximity to the device. The textile thus prevents the flames from reaching the dispensing devices.

In addition, when water is used to extinguish the fire, it is fixed by capillary action between the meshes thereby further improving the resistance to fire.

Finally, if one or more of the dispensing devices are opened, for example if they are pierced, the gas escaping from the devices does not remain captive inside the protective element. The mesh structure effectively allows the gas to escape through the openings provided between the meshes thereby avoiding pressure buildup within the unit.

The protective element can advantageously have properties of mechanical strength. For example, tests have been carried out to show that the protective element does not tear when it is pierced by the fork of a lift truck travelling at a speed of 4 to 5 km/h. The protective element can thus be difficult to tear or pierce, thereby fully protecting the dispensing devices against external mechanical damage. This minimises the risk of the devices being pierced by the fork of a lift truck for example, which could result in an escape of propellant gases which are then liable to ignite if a flame or a spark of mechanical, electrical or electrostatic origin is in proximity thereto.

In addition, by virtue of its mechanical strength, the protective element prevents the pressurised dispensing devices from being forcibly ejected from the unit. Thus, if a fire spreads inside the unit, the burning dispensing devices are prevented from being ejected over a distance of several metres which is liable to cause the fire to spread rapidly.

The protective element can contain aramid or polybenzazole (PBO) fibres. In particular, the protective element can contain Kevlar® or Nomex® fibres, these two materials being marketed by the company DuPont de Nemours. These materials have intrinsic properties of heat and fire resistance, as well as excellent mechanical strength.

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Alternatively or additionally, the protective element may be subjected to fire-proofing treatment.

The protective element can include several identical or different textile layers.

At least one of the layers can have a padded structure. This has the effect of further improving the water retention capacity of the textile thereby further enhancing its fire resistance.

The protective element can include a reflective layer, in particular a textile layer incorporating aluminium fibres, or a textile layer covered with aluminium. The protective element is thus able to reflect the radiant heat generated by the flames of a fire spreading in proximity to the unit thereby preventing the dispensing devices from overheating.

The protective element can be in the form of a slipcover. It can thus be readily fitted around the dispensing device so as to completely surround it.

In addition, the protective element can be extensible. It can thus be adapted to fit all the shapes of the devices to be protected.

The container can hold a cosmetic product. The expression "cosmetic product" is understood to mean a product such as defined in Council Directive 93/35/CEE dated 14th June 1993, amending Directive 76/768/CEE for the sixth time.

The device can for example contain a skincare product, a makeup product, a bodily hygiene product, a haircare product or a sunscreen product.

The unit can include several dispensing devices arranged on a pallet provided for the transportation thereof, i.e. a loading surface.

The devices can be contained in cartons placed on the pallet.

The protective element can be fitted over the pallet and all of the dispensing devices. It is thus possible to dispense with the use of stretch film which is generally wrapped around the pallets.

The protective element can be attached to the pallet, in particular by means of clips or straps.

The protective element can thus curb the theft of dispensing devices when the pallets are being stored or transported.

The pallet can include at least one opening configured to receive a fork of a lift truck, the opening being accessible from the outside when the protective element is attached to the pallet.

Apart from the arrangements described above, the invention includes a certain number of other features which will be explained below, in relation to non-limitative embodiments, described in reference to the attached figures wherein:

- Figure 1 illustrates a perspective view of a dispensing device of the unit according to the invention;

- Figure 2 illustrates a perspective view of a preferred embodiment of a unit according to the invention including several devices as depicted in Figure 1 before assembly of the protective element;

- Figure 3 illustrates the unit in Figure 2 with a protective element in the assembled position; and

- Figure 4 illustrates a second embodiment of a unit according to the invention.

The dispensing device 10 shown in Figure 1 includes a container 11 of cylindrical shape, in particular made of aluminium or tin. As a variant, the container can have any other shape. It can also be made of thermoplastic material.

The container 11 is surmounted by a dispensing head 12 designed to actuate a valve 13 mounted on the container 11, and to dispense the product via an outlet aperture 14. The valve is actuated via a bearing surface 15 disposed on the dispensing head. The valve can be of the push-down or tilting type (tilt valve).

The device 10 can include a detachable cap 16 designed to be mounted with a light friction fit on the dispensing head 12, thereby protecting it from the external environment when the device is in the storage position.

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A cosmetic product P is packaged in the container 11. The product P can be in the form of a liquid, a foam, or a more viscous consistency, in particular in the form of a cream or a gel. The product P can be a skincare product, a makeup product, a haircare or bodily hygiene product, or a sunscreen product.

The product P is pressurised by means of a propellant gas G, liquefied or otherwise. The gas can be packaged directly in contact with the product as illustrated in Figure 1, or separately via a piston or a flexible-wall pocket.

As can be seen in Figure 2, several dispensing devices 10 are packaged in a carton 30 designed to be delivered to a point of sale.

Several cartons 30 are stacked on a pallet 40, i.e. a loading surface, thereby facilitating movement of the cartons, it being thus possible to move several cartons at the same time.

According to the invention, the pallet loaded with several cartons is covered by a protective element 20 which protects the unit against fire and also against mechanical damage. In particular, Figure 3 shows a protective element 20 in the form of a slipcover which fits over the pallet 40 loaded with cartons 30 filled with pressurised dispensing devices 10.

The slipcover 20 takes the form of an open envelope into which the pallet loaded with cartons can be inserted.

The slipcover 20 is for example made from a first rectangular portion 21 of elongated shape of which the ends 21a and 21B are fixed together so as to form the sidewalls of the slipcover, the bottom edge 23 of this sidewall delineating the opening in the slipcover. The ends 21a and 21b are for example stitched, welded or glued together. The upper edge 24 of the sidewall 21 is connected to a second rectangular portion which is attached, over its entire periphery, to the edge 24 of the sidewall so as to form the topside of the slipcover opposite the opening.

As a variant, the slipcover can be formed solely by one rectangular portion of elongated shape of which the ends 21a and 21b are attached together, and the upper edge 24 of which is gathered and attached to itself.

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The slipcover can of course be made differently and can also have any other shape, the shape obviously being chosen in relation to the item to be protected.

Such a slipcover is flexible so that it can be readily fitted over the pallet loaded with cartons.

In the example illustrated in Figures 2 and 3, the lower edge 23 of the protective slipcover 20 is attached to the pallet 40, above the openings 41, so as to facilitate the passage of the fork of a lift truck.

The unit 100 can thus be stored in a storage area and can be transported by means of a lift truck.

The protective slipcover 20 is composed of at least one layer of a fibre-based textile with fire-proofing properties. In particular, aramid fibres or polybenzazole fibres can be used. The term aramid designates any synthetic fibre in which the base polymer is composed of the amide-NC-CO group, of which at least 85% is directly bonded to two aromatic cores, while the term polybenzazole designates high-performance fibres belonging to the family of polymers containing an aromatic heterocycle. Kevlar® or Nomex® fibres may be chosen for example, these two materials being marketed by the company DuPont de Nemours.

In a particular example, the protective slipcover 20 can be made of textile according to any one of the examples described in patent application FR 2 822 650, incorporated herein by reference.

The slipcover 20 includes several layers of textile for example. The mechanical protection of the slipcover is thus enhanced in that the different layers will absorb a large amount of energy, during impacts for example, so that the impacts do not reach the devices, or at least do so with less violence.

In addition, the ability of the slipcover to retain water by capillary action is increased.

The different layers of textile can be composed of fibres of different types or having different types of weave.

At least one of the layers can have a padded structure in which water can be retained by capillary action.

At least one of the layers can be subjected to a fire-proofing treatment to further increase the heat and flame resistance of the slipcover.

In addition, the slipcover can incorporate aluminium fibres enabling it to reflect the radiant heat generated by the flames of a fire spreading in proximity to the unit thereby preventing the dispensing devices from overheating.

Instead of using aluminium fibres, one of the layers can be lined with an aluminium film.

Labels carrying information relating to the devices 10 protected by the slipcover can be affixed to the external surface of the slipcover.

In another embodiment, it is possible to use slipcovers 20 configured to surround a single pressurised dispensing device. An example of such a unit 100 is depicted in Figure 4. As a variant, the slipcover 20 can protect two or more aerosol devices 10 by holding them together by virtue of its extensibility.

Instead of being in the form of a slipcover, the protective element 20 can be composed of a simple cover, for example rectangular, circular or any other shape. Such a cover can be used to cover a single pallet loaded with cartons or several pallets at the same time, or to directly cover one or more devices 10 that are not packed in cartons.

In the foregoing detailed description reference is made to preferred embodiments of the invention. It is evident that variants thereto can be proposed without departing from the invention as claimed herebelow.

In the claims which follow and in the preceding description of the invention, except where the context requires otherwise due to express language or necessary implication, the word "comprise" or variations such as "comprises" or "comprising" is used in an inclusive sense, i.e. to specify the presence of the stated features but not to preclude the presence or addition of further features in various embodiments of the invention.

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. – A unit including:

- at least one cosmetic product dispensing device including a container holding the cosmetic product to be dispensed and a propellant gas, together with a valve enabling the product to be dispensed when it is actuated; and

- a fire protection element at least partially surrounding the device, the protective element including at least one textile layer.

2. – A unit according to Claim 1, wherein the protective element has properties of mechanical strength.

3. – A unit according to Claim 1 or Claim 2, wherein the protective element contains aramid or polybenzazole fibres.

4. – A unit according to any one of the preceding claims, wherein the protective element is extensible.

5. – A unit according to any one of the preceding claims, wherein the protective element includes several identical or different textile layers.

6. – A unit according to any one of the preceding claims, wherein at least one of the layers includes a padded structure.

7. – A unit according to any one of the preceding claims, wherein the protective element includes a reflective layer, in particular a textile layer incorporating aluminium fibres.

8. – A unit according to any one of the preceding claims, wherein the protective element is in the form of a slipcover.

9. – A unit according to any one of the preceding claims, comprising several dispensing devices arranged on a pallet provided for the transportation thereof.

10.– A unit according to claim 9, wherein the dispensing devices are contained in cartons placed on the pallet.

11.– A unit according to Claim 9 or Claim 10, wherein the protective element fits over the pallet and all of the dispensing devices.

12.– A unit according to any one of the preceding claims, wherein the protective element is attached to the pallet.

13.– A unit according to Claim 9 or Claim 10, wherein the pallet includes at least one opening configured to receive a fork of a lift truck.

14.– A unit according to claim 13, wherein the opening is accessible from the outside when the protective element is attached to the pallet.

15.– A unit as claimed in claim 1 and substantially as herein described with reference to the accompanying drawings.

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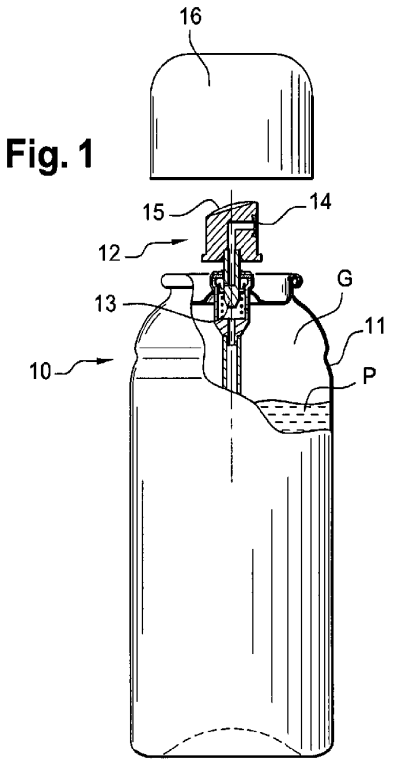

Fig. 1

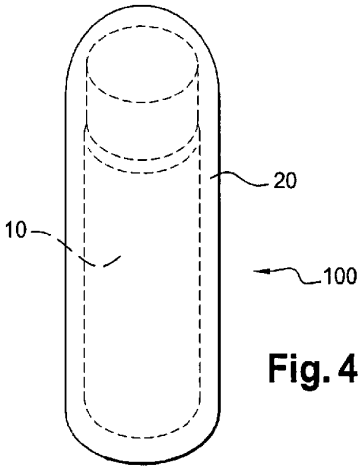

Fig. 4

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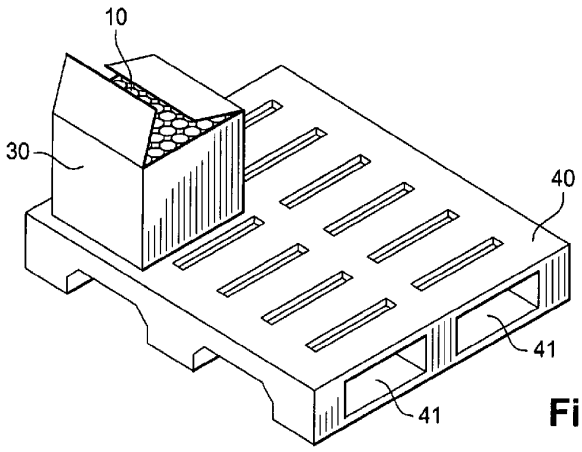

Fig. 2

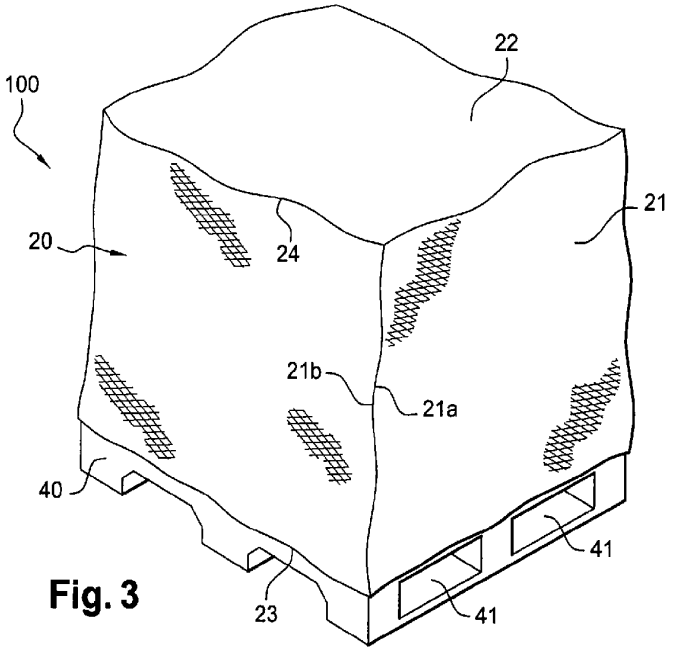

Fig. 3