(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
12 January 2006 (12.01.2006)

PCT

(10) International Publication Number
WO 2006/003386 A1

(51) International Patent Classification[7]: B65D 5/50

(21) International Application Number:
PCT/GB2005/002549

(22) International Filing Date: 30 June 2005 (30.06.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0414984.5 2 July 2004 (02.07.2004) GB

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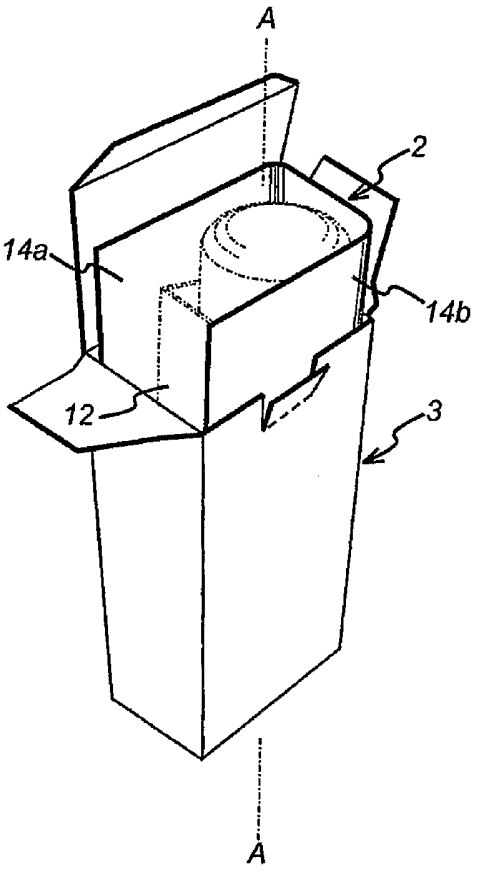
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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

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(54) Title: PACKAGE



(57) Abstract: The present invention provides a package (3) in which a dispenser (12) is contained and having at least one support (2) which suspends the dispenser (12) in the package (3). Suspending the dispenser (12) within the package (3) protects it from impacts and deformations of the package (3), which may otherwise cause it to actuate during transit or, if it is provided with a dose-counter, miscount the number of doses remaining or dispensed.

WO 2006/003386 A1

European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

PACKAGE

FIELD OF INVENTION

The present invention relates to a package for a dispensing device.

The invention is particularly, but not exclusively, concerned with a package for a drug-dispensing device such as an inhaler and especially a pressurised metered dose inhaler (hereinafter referred to as a "pMDI"). The invention does, however, embrace other dispenser types, for example a dry powder inhaler (DPI), as will be appreciated by the reader skilled in the inhaler art.

BACKGROUND OF THE INVENTION

pMDIs are well known in the art of inhalation devices. It is therefore not necessary to describe the construction and operation of a pMDI other than in bare essentials.

A pMDI comprises a canister unit and a housing. The housing is generally tubular, although this is not essential, and generally formed of a plastics material, for instance by moulding. The canister unit comprises a canister having one open end, typically made from a metal such as aluminium. The open end of the canister is sealingly capped by a metering valve assembly. The valve assembly includes a hollow dispensing member, usually in the form of a valve stem, which projects from the open end of the canister. The dispensing member is mounted for sliding movement relative to the canister between an extended position, to which the dispensing member is biased by a biasing mechanism in the valve assembly, and a depressed position. Movement of the dispensing member from the extended position to the depressed position results in a metered dose of the aerosol formulation being dispensed from the canister through the dispensing member.

In use, the sealed canister contains a pressurised medicinal aerosol formulation. The formulation comprises the medicament and a fluid propellant, and optionally one or more excipients and/or adjuvants. The medicament is typically in solution or suspension in the

formulation. The propellant is typically a CFC-free propellant, suitably a liquid propellant, and may, for example, be one of the hydrofluoroalkanes (HFA) 1,1,1,2-tetrafluoroethane (HFA-134a) and 1,1,1,2,3,3,3–heptafluoropropane (HFA-227).

The housing comprises an internal passageway having an open end. The canister unit is slidable into the internal passageway through the open end with the canister unit being inserted valve assembly first into the internal passageway. A stem block, which receives the dispensing member of the canister when the canister unit is received in the housing in a rest position, has a passageway with an inlet end for receiving the dispensing member and an outlet end, which faces a dispensing outlet of the housing, typically a mouthpiece or a nasal nozzle. The stem block holds the dispensing member stationary whereby depression of the canister unit from its rest position further into the housing to an actuated position causes the dispensing member to be displaced from the extended position to the depressed position relative to the canister. A metered dose of the aerosol formulation will thereby be dispensed out of the dispensing outlet of the housing via the internal passageway of the stem block.

In use, a patient in need of a metered dose of the medicinal aerosol formulation concurrently inhales on the dispensing outlet and depresses the canister unit from the rest position to the actuated position. The inspiratory airflow produced by the patient entrains the metered dose of the medicinal aerosol formulation into the patient's respiratory tract.

Inhalers are commonly provided with a dust cap that covers the dispensing outlet when the inhaler is not in use. The dust cap, when applied, prevents foreign material from entering the housing. This prevents the user from inhaling dust or lint, for example, that might otherwise accumulate in the housing. This is of particular importance where the user suffers from asthma or another respiratory condition, as a result of which the inhalation of foreign material may cause severe irritation.

Developments to pMDIs have included the provision of actuation indicators or dose counters therefor. Such a dose counter is described in PCT Patent Applications Nos. WO-A-9856444 and WO-A-2004/001664 to Glaxo Group Limited. The pMDI canister unit may comprise the dose counter, which is fixably secured on the valve assembly end of the

canister and includes a display which denotes the number of metered doses of the medicament formulation dispensed from, or remaining in, the canister. The display of the dose counter may be visible to the patient through a window provided in the housing. The display may be presented by a plurality of indicator wheels rotatably mounted on a common axle, each wheel having numerals from '0' to '9' displayed in series around the circumference.

pMDI devices, however, are susceptible to unintentional actuation, particularly whilst in transit, for example shipment between the manufacturer and distributor. During such transit, such devices and their package are often subjected to impacts and sudden movements. Such forces can actuate the pMDI, causing doses of the formulation to be dispensed. When the pMDI includes a dose counter, rough handling in transit can cause the value displayed to the user by the counter to increase or decrease so that it is not consistent with the number of doses that have been dispensed by, or remain in, the pMDI. It is wasteful to dispense unused doses of the medicament, and potentially very dangerous for a dose counter to indicate to the user that more doses remain in the canister than are actually present.

pMDIs are ordinarily stored in a sealed overwrap inside a cardboard box. The overwrap is commonly made from foil, for example, and protects the pMDI from moisture. WO-A-2001/87392 A2 describes a sealed overwrap that prevents moisture ingress but is permeable to the propellant gas of the pMDI contained therein. This prevents the overwrap from bursting if its interior pressure increases due to leakage of the propellant from the container. A dessicant is also provided inside the overwrap.

WO-A-2004/002559 describes a sealed overwrap for an HFA-propelled pMDI comprising a quantity of HFA-absorbent material to absorb any leaked propellant to maintain the interior of the package at ambient pressure.

However, these prior art packages do not prevent unintentional actuation of the pMDI. If a pMDI-containing package is roughly handled the pMDI is free to move inside the sealed packed and impact surfaces exterior to the package, for example the walls of an exterior package such as a cardboard box.

Unintentional actuation of the inhaler in a prior art package can happen in one of a number of ways. For example, a sudden acceleration of the outer package may cause the inhaler to move relative to it and strike an interior wall. In the exemplary case of a pMDI this impact of the pMDI against the wall may be sufficient to cause the canister unit to be depressed within the housing, causing a dose to be dispensed and/or a dose counter to increment or decrement. Alternatively, the initial acceleration itself may be sufficient to cause the container unit to move within the housing with sufficient momentum for actuation to occur. In a third possibility, the outer package may become deformed as a result of mishandling and the deformed area of the package may press against the pMDI, causing it to be dispensed. Although the above illustrations are made with reference to pMDI having a housing and a canister unit, it will be understood that other inhaler types may be similarly unintentionally actuated.

This is highly problematic since, for example, during actuation, the pMDI dispenses medicament formulation at a higher rate than can be absorbed by a propellant-absorbent insert or escape through the 'breathable' material of the prior art overwrap. Consequently, if a current pMDI-containing package is roughly handled propellant will build-up inside the package and, if the pressure is sufficient and the package is sealed, burst it.

Other than the possibility of bursting, there are clearly other disadvantages to current packages. Accidental actuation during transit is wasteful and leaves the consumer with fewer remaining doses at the time of purchase. Also, impacts can cause some prior art dose counters to miscount, or the pMDI to 'partially actuate', where the shock is sufficient to cause the pMDI to dispense at least a partial dose of the medicament formulation, but insufficient to update the dose counter. This latter problem is dangerous for the user, as discussed above.

Therefore, it is clearly desirable to provide a package for a dispensing device that prevents its unintentional actuation. It is also desirable to provide a package for a

dispenser that prevents the dose counter of the dispenser from miscounting the number of dispensed doses.

STATEMENTS OF INVENTION

A first aspect of the present invention provides a package containing a dispenser and at least one support which suspends the dispenser in the package. Preferably, the package is provided with an outer package in which the dispenser is suspended by the support. The dispenser may be operated to dispense by the relative motion of its parts and may be an inhaler - particularly, but not exclusively, a pMDI.

This is particularly advantageous over prior art packages, since the suspension of the dispenser reduces or eliminates contact between the dispenser and the package.

The present invention substantially prevents the above-mentioned forms of unintentional actuation. Suspension of the dispenser within the package prevents it from being thrown about within the package during impacts and it cannot, therefore, strike the internal walls. Also, minor deformations of the package are unlikely to contact the dispenser, since it can be suspended away from the walls.

Preferably, the at least one support is made from a resilient material such as cardboard. Thus, the supports may structurally reinforce, and help to prevent deformation of, the package. Also, the supports dampen the effect of any sudden impact, since they flex in the event of an impact, absorbing some of the shock.

The at least one support may comprise at least one insert and may be in a deformed, including folded, configuration, in which case it may biased to return to a non-deformed configuration.

In a preferred embodiment, the support is deformed and has a generally semi-cylindrical form. Securing means are provided for securing the dispenser to the support. These securing means may comprise a tab for securing the top of the dispenser and a shelf

for securing the base of said dispenser. The support of this embodiment may also have a generally 'V' shaped cross section. Finally, an end flap connecting the sides of the support at one or both ends may be present. The end flap not only prevents the insert from returning to its flat configuration, allowing it to be used with packages that are not sufficiently rigid, or appropriately dimensioned, to hold the support in its folded configuration, but may also be arched away from the insert in order to cushion the dispenser from impacts to the ends of the package.

In a first alternative embodiment a support is provided that is deformed into a generally 'Z' shape. The support comprises a window, through which, when packaged, the dispenser extends. The dispenser may be an interference fit in the window, to secure it in place in the insert. Shelves may be provided in the insert above and/or below the dispenser to further restrict its movement.

In a second alternative embodiment, the support comprises at least two flexible webs positioned on opposite sides of the dispenser. The opposite ends of each flexible web are positioned at opposite points on the interior surface of the package. The length of each web is preferably greater than the distance between the two opposite points between which it is positioned, so that it arches between the points. The dispenser is placed between the arched webs and is gripped between them. The webs may arch convexly or, alternatively, concavely. The webs may be inserts or, if the package is a container such as a box or carton or the like, may be formed by elongation of a flap of the container.

A second aspect of the invention provides a method of packaging a dispenser comprising providing an package and at least one support as defined in any one of claims 1 to 35; suspending the dispenser in the package with the support; and closing the package.

Further aspects and features of the present invention are set forth in the accompanying claims and in the exemplary embodiments described hereinafter with reference to the accompanying figures and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows a deformable insert for a package for a pMDI, according to an embodiment of the present invention;

Figure 2 shows a pMDI secured by the insert of figure 1;

Figure 3A and Figure 3B show the insert and pMDI of figure 2 in an outer package;

Figure 4 shows a deformable insert for a package for a pMDI, according to a another embodiment of the present invention, wherein the insert is provided with securable end flaps that can be used to hold it in its folded configuration;

Figure 5 shows a pMDI secured by the insert of figure 4;

Figure 6 shows the insert and pMDI of figure 5 in an overwrap;

Figure 7 shoes an insert for a package for a pMDI, according to another embodiment of the present invention, securing a pMDI and an overwrap, wherein the pMDI is sealed inside the overwrap and supported between two shelves

Figure 8 shows an insert for a package for a pMDI, according to another embodiment of the present invention, wherein the insert has a generally 'Z' shape;

Figure 9 shows a pMDI secured by the insert of figure 8, wherein the pMDI is optionally sealed inside an overwrap;

Figure 10A shows the insert of figure 8 securing a pMDI and figure 10B shows the insert and pMDI inside an outer package.

Figure 11 shows two webs suspending a pMDI, optionally sealed within an overwrap, within an outer package, according to another embodiment of the present invention;

Figure 12 shows an outer package comprising a box with extended flaps; and

Figure 13 shows a pMDI, optionally in an overwrap, suspended in the outer package of figure 10, according to another embodiment of the present invention.

DETAILED DESCRIPTION

In the following description, like reference numerals have been used to indicate like parts in the different embodiments of the invention. Each embodiment is adapted for use with a pMDI which is hand-held and hand-operable.

Figures 1 to 3B illustrate a first embodiment of the present invention. The embodiment comprises an insert (1) for supporting the pMDI (2) inside the outer package. The insert (1) is preferably manufactured from cardboard, since this is inexpensive, light, recyclable, resilient and pliable. The pliable nature of cardboard permits it to flex, absorbing light and moderate impacts, and to crumple when absorbing more severe impacts.

The insert (1) comprises a sheet (4) of resilient material, preferably cardboard, into which a window (5) is cut, leaving a tab (6) and a flap (7) at opposite ends of the window (5). The flap (7) is foldable about a score-line (8) and is folded generally perpendicular to the rest of the sheet (4) to form a first shelf (9a). As shown in Figure 1, the sheet (4) is bent into a U-shape about an axis (A), although it could be folded or bent along the axis (A) into other shapes, for example a V-shape.

Figure 2 shows the insert (1) of figure 1, to which a pMDI (2) has been removably attached by positioning the pMDI (2) inside the window (5) in the sheet, inserting the tab (6) between the interior surface of the open end (10) of the housing (12) and the container (11) and resting the opposite end of the housing (12), its 'base' (13), on the first shelf (9a). The tab (6) prevents the pMDI (2) from moving upward or from side to side and the first shelf (9a) prevents the pMDI (2) from moving downward.

Figure 3A and Figure 3B shows the insert (1) and pMDI (2) of figure 2 in use, inserted into a cardboard box (3), although other outer packages, for example a heat-sealable overwrap, may be used. The material of the sheet (4) is resilient and is biased to return to its flat configuration and therefore the sides (14a, 14b) of the insert are forced against the interior walls of the box (3), holding it in position inside. Additionally, the length of the insert (1) is preferably matched to the length of the box (3), in order to restrict movement of the insert (1) along its axis (A) within the box. Thus, movement of the pMDI (2) relative to the box (3) is substantially prevented and a package according to the present invention is provided.

Of course, the assembly of the insert (1) and pMDI (2) could be sealed in an overwrap and then inserted into the cardboard box (3).

Figure 4 illustrates a second embodiment of the present invention, which is similar to the previously described embodiment except that the tab (6) is replaced by a second shelf (9b) and the insert (1) further comprises flaps (17a, 17b), which can be folded or bent over the top and bottom of the insert (1) where they are secured in place, for example by glue. In figure 4, the insert (1) is shown folded into a generally U-shape about axis A, but it may be bent or folded into other shapes. The flaps (17a, 17b) prevent the sheet (4) from returning to its unfolded configuration. This allows the insert (1) to be inserted into an outer package that would otherwise lack the rigidity to keep the insert folded. The flaps (17a, 17b) are preferably arched, as shown in figure 5, or V-shaped, and elastically deformable in order to dampen impacts.

In an alternative embodiment, the tab (6) is not replaced by a second shelf, but the flaps (17a and 17b) are present. Figure 5 illustrates a pMDI (2) secured by such an arrangement and figure 6 shows the pMDI (2) and insert (1) of figure 5 inserted into an overwrap (18).

The overwrap (18) may be made from a heat-sealable foil or plastic which is then heat-sealed with the insert (1) and pMDI (2) inside it, providing a package according to the present invention. The use of such an overwrap (18) as an outer package reduces the total

weight and cost of the overall package, and may be made impermeable to water vapour and air, so that the pMDI (2) is hermetically sealed in the package. The overwrap (18) and its contents can be placed in a further container, for example a box, optionally using another suspending support of the invention.

Figure 7 shows a pMDI (2) inside an overwrap (62), secured by the insert (1) of figure 4. The pMDI (2) and overwrap (62) are supported by the first and second shelves (9a and 9b).

Figure 8 shows an insert (19) for use in another embodiment of the present invention. A sheet (20) of cardboard is folded, in opposite directions about score lines (21a, 21b) located across the sheet at separated points along its length, into a Z-shape. The folded insert (19) has three portions, a top portion (22), a middle portion (23) and a bottom portion (24), wherein the top (22) and bottom portions (24) are at opposite ends of the middle portion (23). A window (25) is provided in the middle portion (23), the window (25) being marginally narrower than the pMDI (2) so that, when inserted into the window (25), the pMDI (2) is an interference fit.

Optionally, the window (25) is formed by cutting the middle portion (23) of the sheet to provide first and second flaps (26, 27), foldable about opposite edges (33, 34) of the window. The first flap (26) is folded away from the plane of the middle portion (23) to form a shelf (28) on one side of the middle portion (23) and the second flap (27) is folded in the opposite direction to form a second shelf (29) on the opposite side of the middle portion (23).

Figures 9 and 10A illustrate the insert (19) of figure 8, with first and second shelves (28, 29), in use. A pMDI (2) is inserted into the window (25) so that the top portion (22) overlies the top (30) of the pMDI (2) and the bottom portion (24) underlies the base (13) of the pMDI (2). When the pMDI (2) is positioned in the window (25), the first shelf (28) overlies and supports its top (30) and the second shelf (29) underlies and supports its base (13). Thus, the pMDI (2) is held securely between the side edges (31, 32) of the window and between the two shelves (28, 29). As shown in figure 9, the pMDI (2) may be inserted into an overwrap (62), and the pMDI (2) and overwrap (62) both inserted into the

window (25) supported between the shelves (28, 29). The shelves (28, 29) are capable of limited motion about their fold lines (33, 34), which dampens the effect of impacts.

In use, the insert (19), with the pMDI (2) attached, is placed in an outer packaging. Figure 10B shows the insert in a cardboard box (3), although other outer packages could be used. As the insert (19) attempts to return to its unfolded configuration, its top and bottom portions (22, 24) are forced against opposite faces of the box (35, 36) securing the insert (19) within the box (3).

In another embodiment of the present invention, the support comprises at least one arched web ((37) or (38)), made from a resilient material. Preferably, the resilient material is cardboard and the support comprises a first and second web (or a single web folded into two portions).

Each web has first and second ends that meet the inner surface of the outer package at first and second locations. The length of the web is greater than the distance between these first and second locations, and the web arches between them. Figure 11 shows a preferred embodiment wherein two webs (37, 38) are provided with common first and second locations (39, 40).

The webs of figure 11 are positioned within a cuboid box (3), such that the first and second common locations (39, 40) correspond to diagonally opposite interior edges of the box (3). The pMDI (2) is inserted between the webs (37, 38), their resilience causing it to be gripped between them and suspended within the box (3). The pMDI (2) is thus substantially prevented from movement within the box (3) and cushioned, by the webs (37, 38), from impact. Although a cuboid box (3) is preferable, it is obvious to those skilled in the art that other outer packages could be used.

The pMDI (2) may be in an overwrap (62), wherein the overwrap (62) is held suspended by the webs (37, 38).

The webs may be formed as an insert having a purse configuration, as illustrated in figure 11. The ends of the purse are pushed towards each other, deforming the purse and

allowing the pMDI (2) (optionally inside an overwrap (62)) to be inserted between the webs (37, 38). The insert and pMDI (2) are then inserted into the box (3).

Figure 12 shows an outer packaging for use with another, related, embodiment of the present invention. The outer packaging comprises a box (41) made from a resilient material, preferably cardboard. The top (46) and bottom (47) of the box (41) each comprise a lid (42), a lid flap (43) and side flaps (44, 45). At each end (46, 47) of the box (41), a first edge (61) of the lid (42) is attached to a first side (48) of the box (31) along a first fold line (50) and a lid flap (43) is provided at a second, opposite, side (51) of the lid (42), connected to the lid (42) along a second fold line (52). Second and third sides (53, 54) of the box (42), opposite one another and each adjacent said first side (48), are provided with side flaps (44, 45) attached to the box along fold lines (55, 56). When the lid (42) is moved to a closed position, it is folded along the first fold line (50) and its lid flap (43) is inserted into the box (41) between a fourth side (57), opposite the first side (48) of the box (41), and the side flaps (44, 45). The lid flap (42) may be provided with slits along the first fold line (50) that engage the side flaps (44, 45) and hold the lid (42) in its closed position.

Cardboard boxes according to the above description are common in the prior art. However boxes that are suitable for use as packages in the present embodiment additionally comprise at least one elongated flap. Preferably, one flap at each end is elongated. Figure 12 shows a possible embodiment where one side flap (44) is elongated at the top end (46) of the box (41), however other flaps (43, 45) may be elongated in addition to, or in place of, this.

Figure 13 shows a box (41) having an elongated side flap (44) at each end (46, 47) in use, containing a pMDI (2). The elongated flaps (44) are arched across the ends of the box (46, 47), creating elastically deformable, resilient cushions (58) across its top (46) and bottom (47). The box (41) and elongated flaps (44) are dimensioned such that the pMDI (2) is gripped between the cushions (58), and thus suspended inside the box (41). As well as substantially reducing movement of the pMDI (2) within the box (41), the cushions (58) dampen the effect on the pMDI (2) of any impacts the box (41) experiences.

The pMDI (2) may be inserted into an overwrap (62) before being inserted into the box (41), so that the overwrap (62) containing the pMDI (2) is held suspended between the cushions (58).

In preferred embodiments, the length of an elongated flap is greater than twice the width of the side on which it is mounted. In the example of figure 12, the elongated side flap (44) is of length d1 + d2, where d1 is distance between the second and third sides (53, 54), and where d2 > d1. In use, the extended flap (44) is folded across the top (46) of the box (41), underneath the lid (42), then a second portion (60) of the flap (44) is folded back along fold line. Since the length (d2) of the first portion (59) is greater than d1, the first portion (59) arches convexly into the box (41), forming a cushion (58). The depth of this arch can be chosen by varying length d2, which is preferably chosen such that the pMDI (2) is an interference fit between opposite cushions (58).

In a less advantageous embodiment, the elongated flap is of length d2 and is not folded back on itself, only arched between opposite sides. This embodiment is less advantageous since it weakens the structure of the box since the lid flap is no longer supported by the underlying extended side flap.

Although figure 13 illustrates an embodiment with an elongated side flap (44) at each end (56, 57) of the box (41), the lid flap (43) may be elongated instead. Furthermore, elongated flaps are not necessarily arched over the top (56) and bottom (57)of the box (4) and may be arched instead across the inner side walls (48, 53, 54, 57) of the box, so that the sides of the pMDI (2) are gripped horizontally. Finally a plurality of cushions (58) could be used to grip the pMDI (2) simultaneously in more than one dimension.

It will be understood that the present invention has been described above by way of example only and that the above description should not be taken to impose any limitation on the scope of the claims. The invention in its full spirit and scope is defined by the appended claims.

CLAIMS

1. A package containing a dispenser and at least one support which suspends the dispenser in the package.

2. The package of claim 1, wherein the package has an outer package in which the dispenser is suspended by the support.

3. The package of claim 1 or claim 2, wherein, the dispenser is operated to dispense by the relative movement of its parts.

4. The package of any preceding claim, wherein the dispenser is an inhaler.

5. The package of claim 3, wherein the dispenser is a pMDI.

6. The package of any preceding claim, wherein the support is made from a resilient material.

7. The package of claim 6 wherein the resilient material is cardboard.

8. The package of any preceding claim, wherein the at least one support comprises at least one insert.

9. The package of any preceding claim, wherein the at least one support is in a deformed configuration.

10. The package of claim 9, wherein the at least one support is biased to return to its non-deformed configuration.

11. The package of claim 9 or 10, wherein the support in its deformed configuration has a generally semi-cylindrical form.

12. The package of claim 9 or 10, wherein the support in its deformed configuration has a generally 'V' shaped cross section.

13. The package of any preceding claim, wherein the support comprises a securing means for securing the dispenser to the support.

14. The package of claim 13 wherein the securing means comprises at least a shelf, on which the dispenser is located.

15. The package of claim 13 or 14 wherein the securing means comprises at least a tab engaging the dispenser.

16. The package of claim 10 or any claim dependent thereon, wherein the support comprises an end flap to one side of at least one end, wherein the end flap is secured to the opposite side of the support, preventing the support from adopting its non-deformed configuration.

17. The package of claim 16, wherein the support comprises an end flap at both ends.

18. The package of claim 16 or claim 17, wherein the at least one end flap is longer than the distance between the two sides of the support and protrudes away from the support.

19. The package of any preceding claim, wherein the support has a generally 'Z' shape.

20. The package of any preceding claim, wherein the support comprises a window, wherein the dispenser extends through the window.

21. The package of claim 20, wherein the dispenser is an interference fit in the window.

22. The package of any of claims 19 to 21, wherein the support further comprises at least one shelf which supports the dispenser.

23. The package of claim 22, wherein the support comprises first and second supporting shelves at opposite ends of the dispenser.

24. The package of any of claims 1 to 7, wherein the support comprises at least two flexible webs positioned on opposite sides of the dispenser.

25. The package of claim 24 when appended to claim 2, wherein the opposite ends of each flexible web are positioned at opposite points on the inner surface of the outer package and the web has a length greater than the distance between these two points, such that it arches between them.

26. The package of claim 25, wherein the webs arch towards the dispenser.

27. The package of claim 25, wherein the webs arch away from the dispenser.

28. The package of any of claims 24 to 27, wherein the dispenser is gripped between the webs.

29. The package of any of claims 24 to 28, wherein the webs are inserts.

30. The package of any of claims 24 to 28, wherein the package comprises a box having two or more elongated flaps.

31. The package of claim 30, wherein each web is formed by an elongated flap.

32. The package of any of claims 1 to 31, comprising a sheath in which the dispenser is enclosed, optionally suspendingly.

33. The package of claim 32, wherein the sheath is heat-sealed.

34. The package of claim 32 or claim 33, wherein the support is inside the sheath.

35. The package of claim 32 or claim 33, wherein the support suspends the sheath with the dispenser inside the sheath.

36. A method of packaging a dispenser, comprising:

providing a package and at least one support as defined in any one of claims 1 to 35;

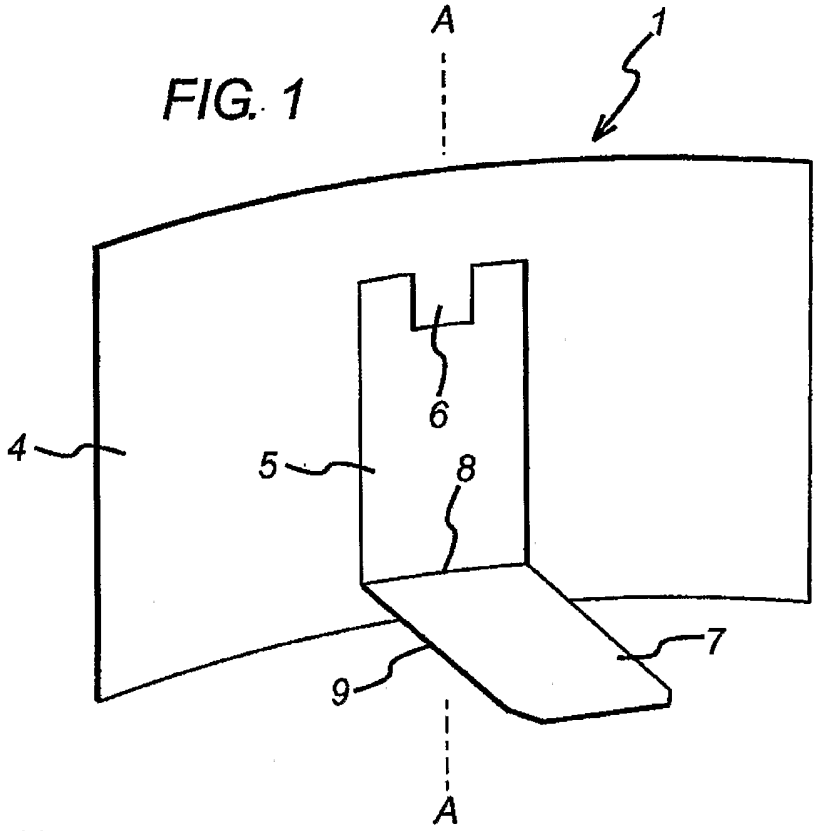
suspending the dispenser in the package with the support; and

closing the package.

37. A package adapted to prevent or inhibit unintentional actuation of a dispenser, substantially as hereinbefore described with reference to FIGURES 1-3, or FIGURE 4, or FIGURES 5-6, or FIGURE 7, or FIGURES 8-10, or FIGURE 11 or FIGURES 12-13 of the accompanying drawings.

38. A method of packaging a dispenser that prevents or inhibits unintentional actuation of a dispenser, substantially as hereinbefore described with reference to FIGURES 1-3, or FIGURE 4, or FIGURES 5-6, or FIGURE 7, or FIGURES 8-10, or FIGURE 11 or FIGURES 12-13 of the accompanying drawings.

FIG. 1



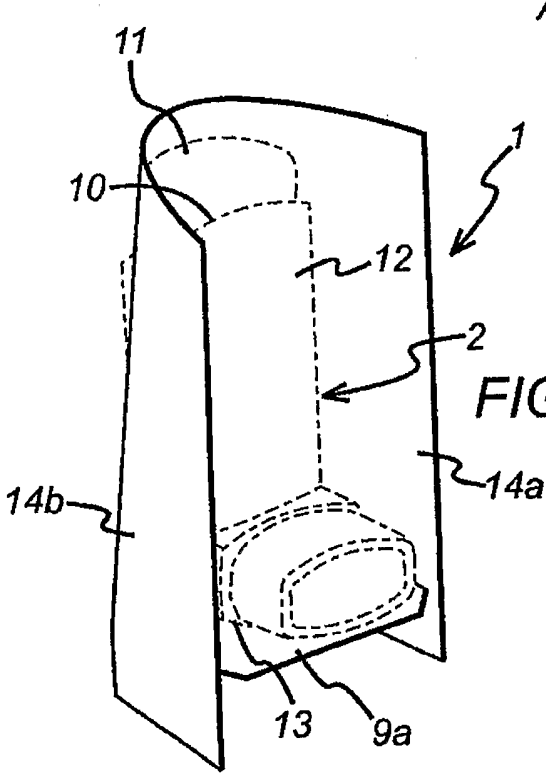


FIG. 2

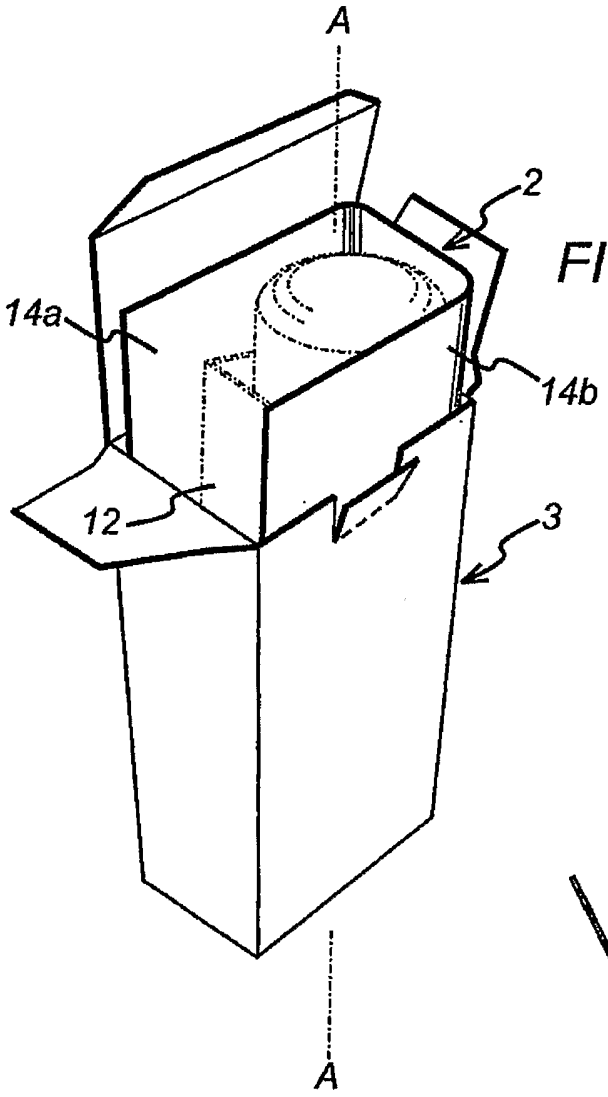


FIG. 3A

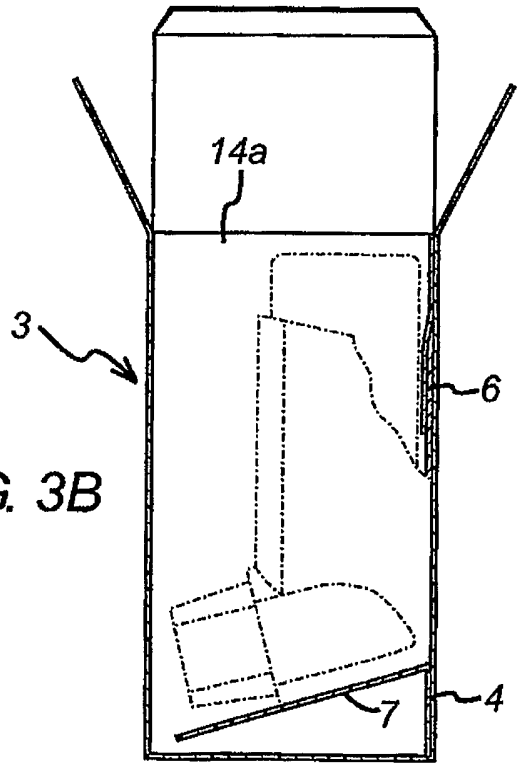
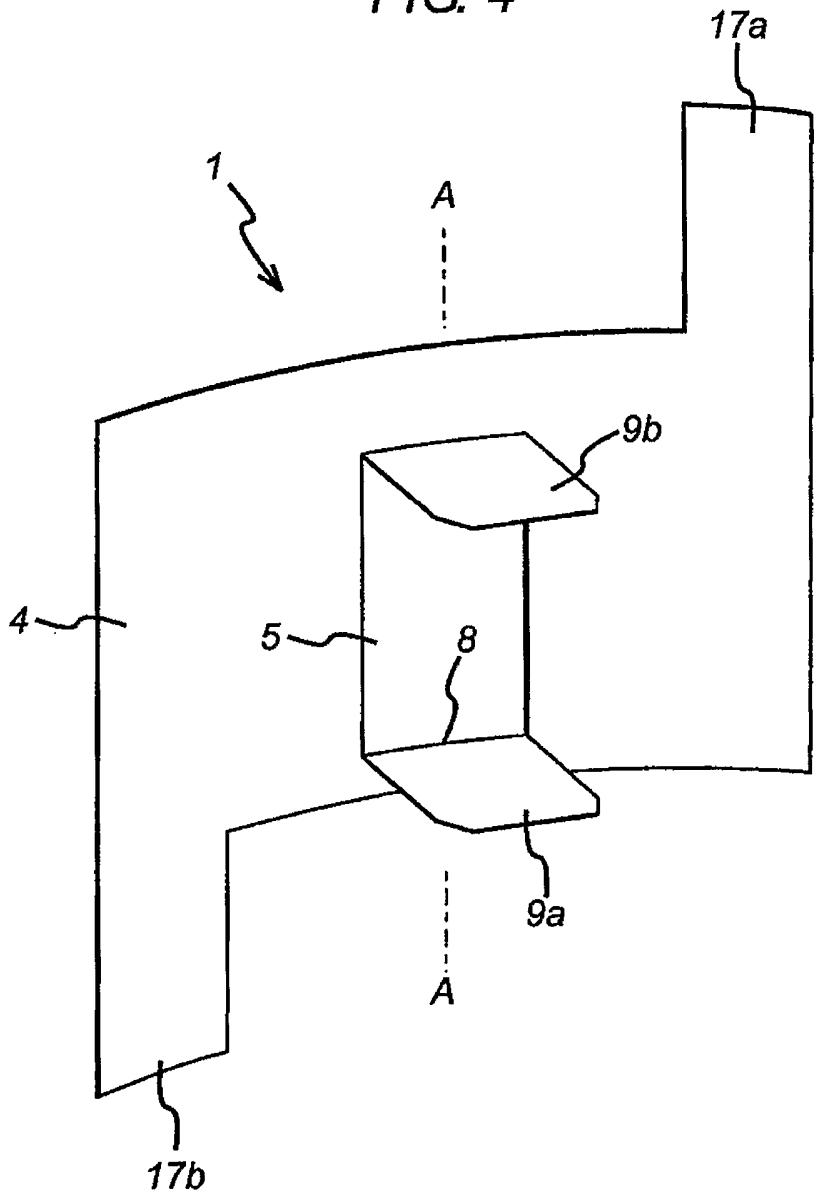


FIG. 3B

FIG. 4



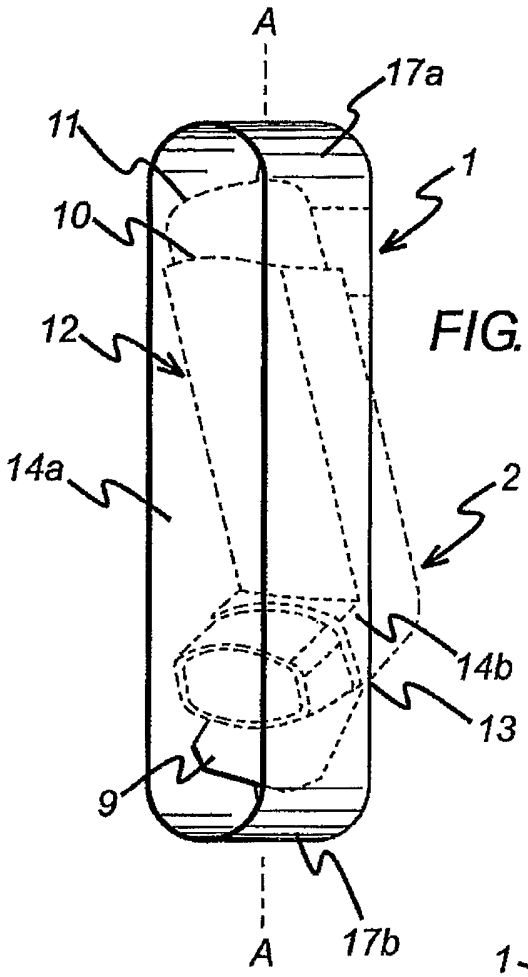


FIG. 5

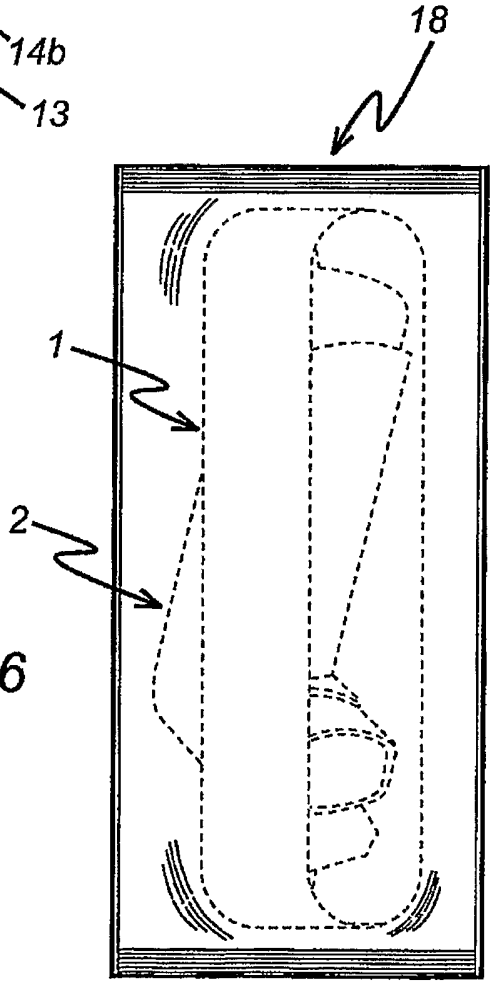
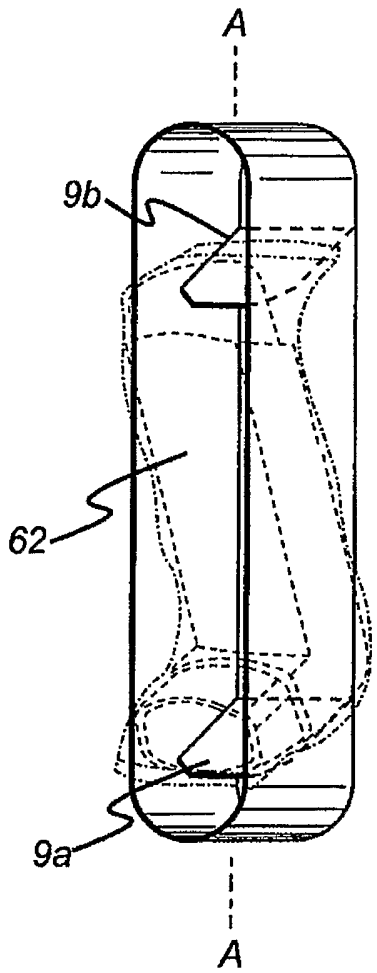


FIG. 6

FIG. 7



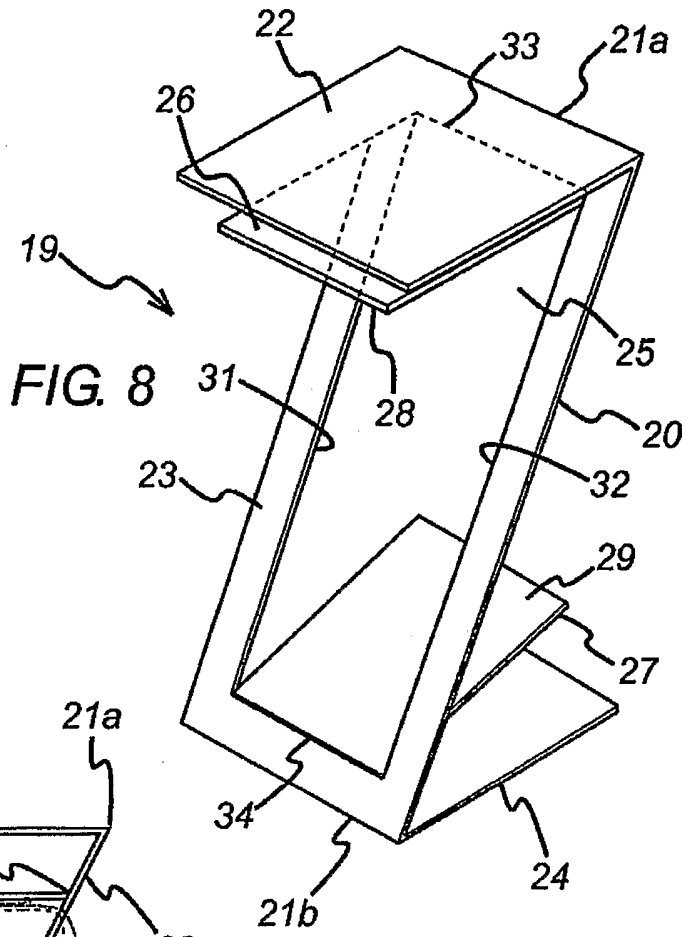

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FIG. 8

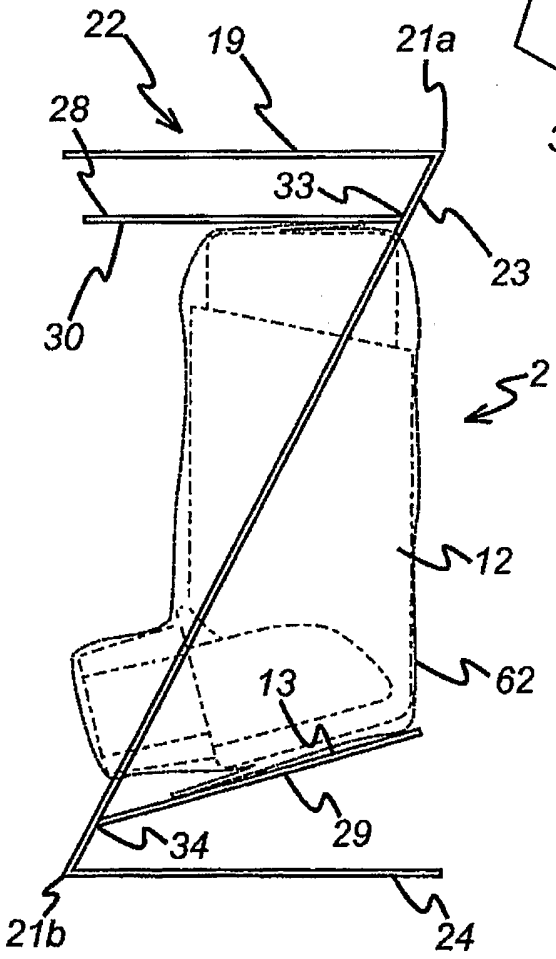

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FIG. 9

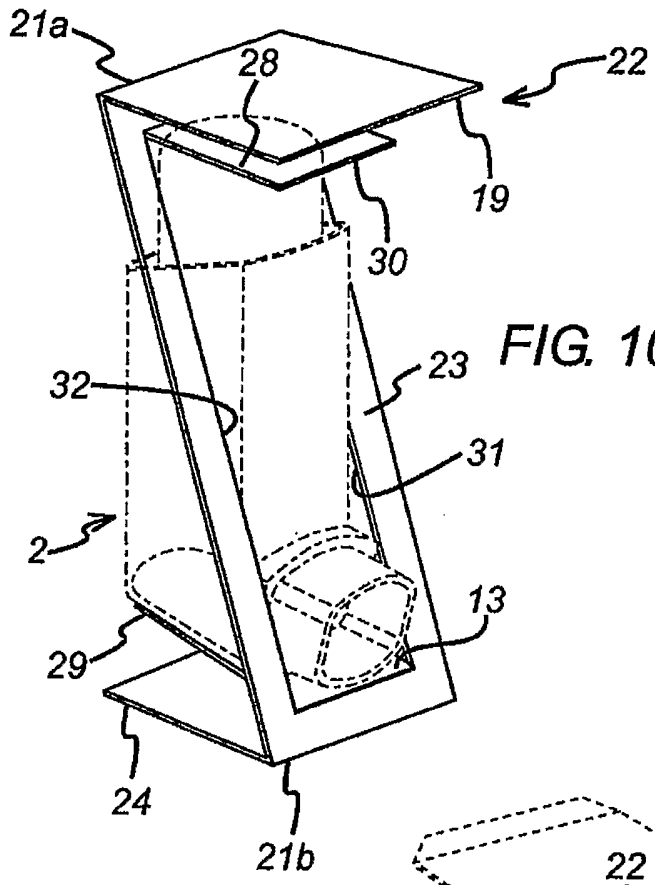


FIG. 10A

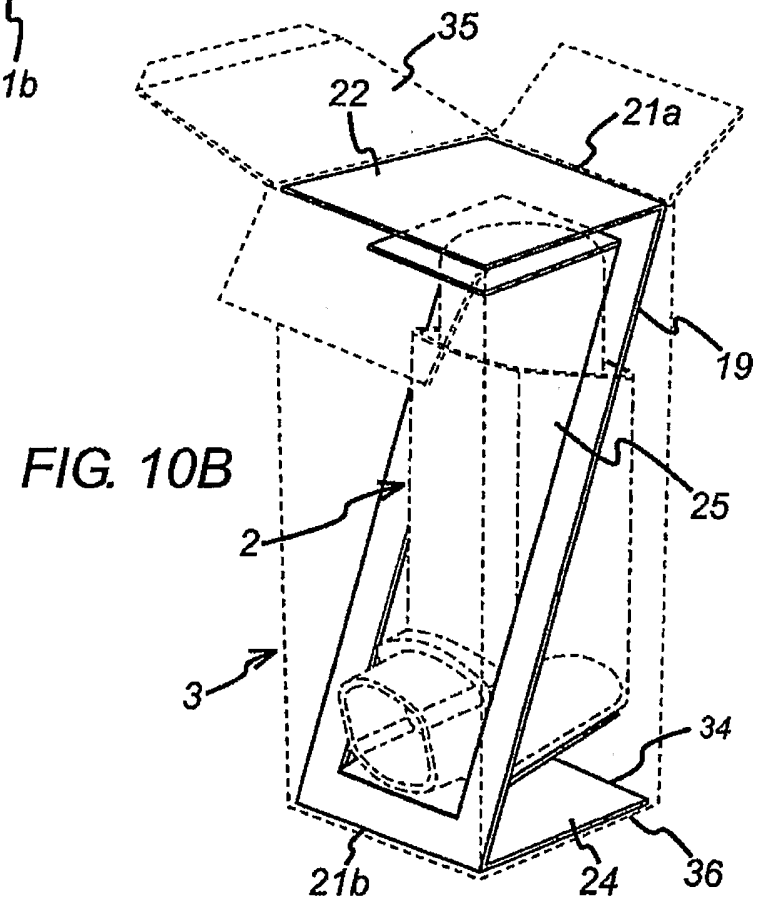
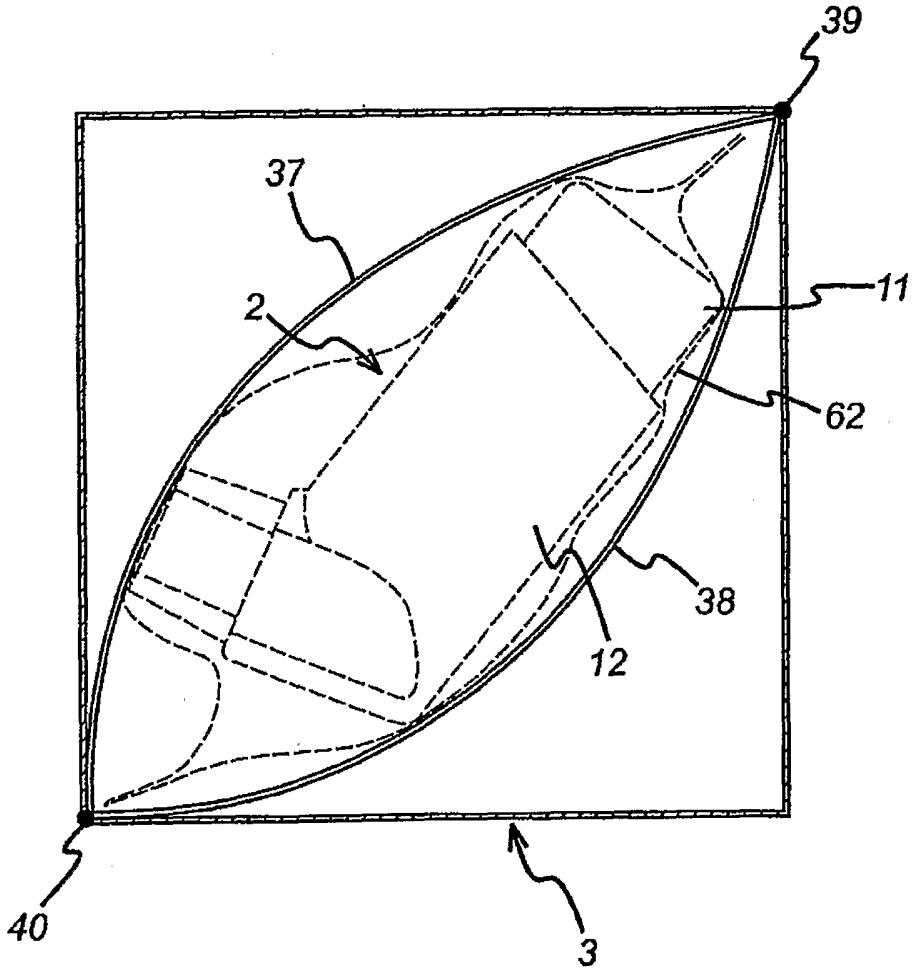


FIG. 10B

FIG. 11



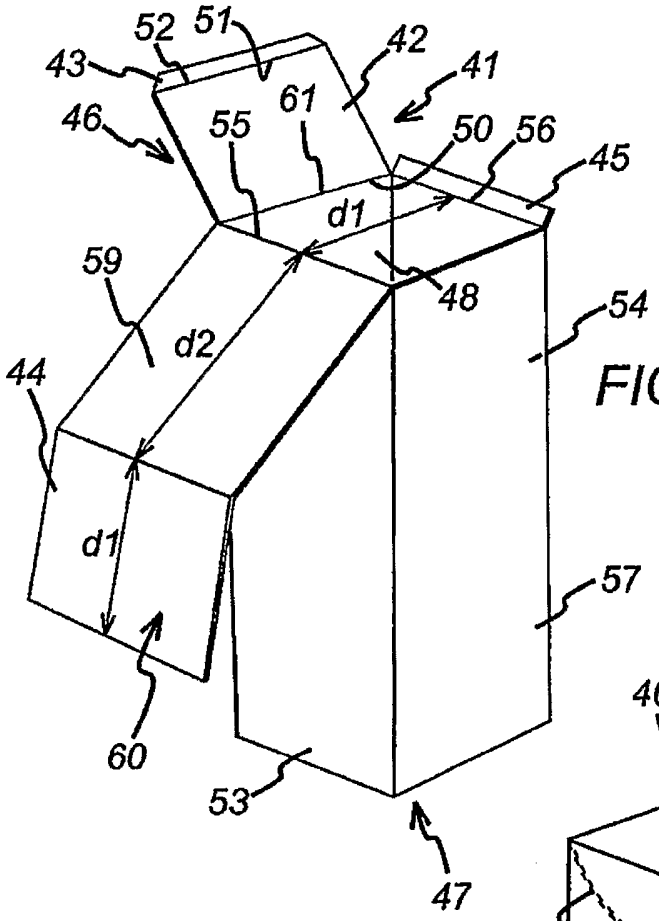

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FIG. 12

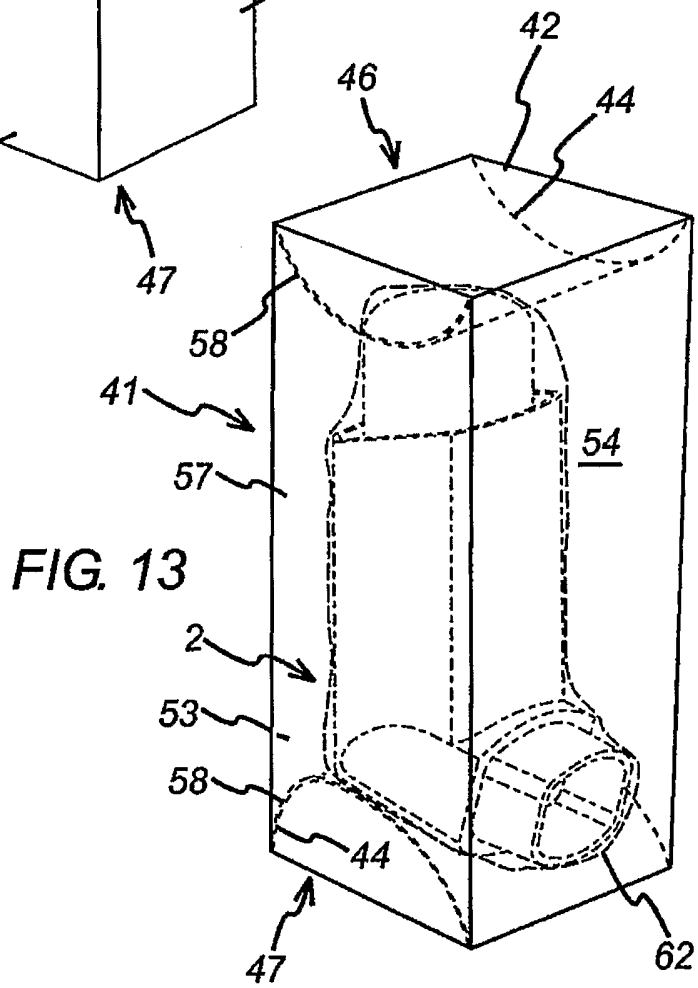

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FIG. 13

INTERNATIONAL SEARCH REPORT

Inte ıal Application No
PCT/GB2005/002549

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B65D5/50

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 744 985 A (HUGUES NICOLLETS SA) 22 August 1997 (1997-08-22) page 2, line 4 - line 36 page 4, line 5 - page 9, line 12 page 11, line 6 - line 26; claim 1; figures 1-8	1-3,6-9, 12-15, 17,19, 20, 22-26, 28-31,36
A	FR 2 737 474 A (SMURFIT SOCAR) 7 February 1997 (1997-02-07) page 5, line 4 - line 22; claims 1,4; figures 3-5	1-36

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
25 August 2005	05/09/2005

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Janosch, J

INTERNATIONAL SEARCH REPORT

Inter nal Application No
PCT/GB2005/002549

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 01/87392 A (GLAXO GROUP LIMITED; HERMAN, CRAIG, STEVEN; WALKER, RICHARD, IAN; GARR) 22 November 2001 (2001-11-22) cited in the application abstract	32-35

Continuation of Box II.2

Claims Nos.: 37,38

The subject-matters of claims 37 and 38 are not clearly defined (Art. 6 PCT), since they consist of references to the drawings and thus these claims do also not fulfill the requirements of Rule 6.2 a) PCT. Consequently, a meaningful search is not possible.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2005/002549

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.: 37,38
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

Int al Application No
PCT/GB2005/002549

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2744985 A	22-08-1997	FR 2744985 A1	22-08-1997
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