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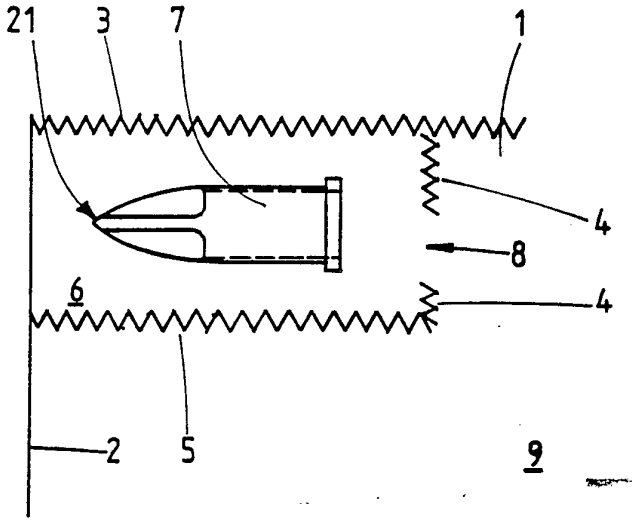
(54) Title: DISPENSING MEANS FOR FLEXIBLE PLASTICS CONTAINERS



(57) Abstract

A dispensing container (1) of flexible material having communicable main and dispensing chambers (9 and 6). The dispensing chamber (6) contains a nozzle (7) to be used to puncture a hole in the wall (2) of the dispensing chamber (6) whereby the contents of the container can be dispensed via the nozzle. The container is sealed around the nozzle after piercing through the wall either by the container material sealing around the nozzle alone or enhanced by moving and retaining the container material between a flange on the nozzle disposed within the dispensing chamber and an external member applied over the nozzle. The external member may comprise a dispensing member with a closeable outlet.

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DISPENSING MEANS FOR FLEXIBLE PLASTICS CONTAINERS

TECHNICAL FIELD

The invention relates to the dispensing of fluids from flexible plastic containers.

BACKGROUND ART

Such flexible plastic containers are commonly plastic bags provided with a dispenser system welded to the open-ended bag prior to filling, a manufacturing process that is expensive and time-consuming and often leads to an accelerated ingress of air into the bag via the dispenser and to a possibility of contamination, also via the dispenser system.

DISCLOSURE OF INVENTION

The present invention provides a cheap and convenient dispensing system in which the flexible plastic container is punctured only at the commencement of dispensing, and in which a variety of styles of dispensers can readily be utilised.

The present invention consists of a container for containing flowable material said container having a main chamber, a dispensing chamber communicable with the main chamber and a dispensing nozzle captured within the dispensing chamber, the arrangement being such that the application of force can cause the dispensing nozzle to pierce the wall of the dispensing chamber allowing the contents to be dispensed from the container via the dispensing nozzle.

The container is made from a flexible material.

The flexible material can be plastics film.

The flexible material can be a barrier film.

The dispensing chamber can be positioned at an end or corner extremity of the container.

The dispensing chamber can be positioned between two flanking main chambers.

The container can include a sealing cap for sealing the dispensing nozzle once it has been used.

Another aspect of the invention consists in a container for containing a material, said container comprising:

means providing a sealed environment for a fluid material, said means defining a main chamber and a dispensing chamber, said dispensing chamber being in a fluid communication with said main chamber, and at least part, if not all, of said dispensing chamber being formed by a flexible plastics material (laminated or not), and

a dispensing member captive within said dispensing chamber

(i) defining a flexible plastics material penetrating region thereof having a sharp extremity region whereby an outlet from a conduit(s) therewithin upon relative movement between said flexible plastics material and said dispensing member caused by physical intervention exteriorally of said container, said sharp extremity region can pierce said flexible plastics material and thereafter said penetrating region while substantially maintaining a seal between itself and said flexible plastics material can position said outlet outside of said flexible plastics material, and,

(ii) defining another region to remain captive within said dispensing chamber, said other region having at least one inlet for materials leading to said conduit(s) and having an exterior thereof that does not facilitate the movement thereof through the flexible plastics material along with penetrating region.

Said means providing a sealed environment for a material can be a bag structure formed from a film of flexible plastics material having appropriate seals between piles to define said dispensing and main chambers.

Said means providing a sealed environment is formed substantially flat from overlying regions of a flexible plastics material that has been folded and/or sealed one ply to the other to define the sealed environment and the two chambers.

Said dispensing member can be an elongate member where the penetrating region is substantially of constant external cross section save for the sharp extremity region thereof and said region to remain captive defines a shoulder from the region of substantially constant cross section which assists in its remaining captive within said dispensing chamber.

Said dispensing member can be elongate and said conduit longitudinally extends from the captive region to the sharp extremity region.

In a further aspect the present invention consists in, in combination, a container as previously defined and a complementary dispensing member adapted to mate with said dispensing member, said complementary dispensing member facilitating the penetration of said plastics material by being positionable against the plastics material from the outside and having a passage way into which said penetrating region can be engaged, the engaged condition enabling a discharge of material to be dispensed from the container via an outlet defined by said complementary dispensing member.

The complementary dispensing member includes means whereby its outlet can be closed.

Said means whereby the outlet of said complementary dispensing member can be closed includes a capping member screw or otherwise engageable to close the outlet of said complementary dispensing member.

In still a further aspect of the present invention consists in a method of use of any apparatus or combination of the present invention.

In still a further aspect of the present invention consists in a method of opening a sealed plastics container containing a material, said contained having sharp hollow probe confined in a separate chamber having access to the contents of the container as a whole, which method comprises, by exterior manipulation of said probe relative to an exterior wall of the container, forcing part of said sharp hollow probe through an exterior wall of said container and engaging the same within a dispenser having means to seal about said hollow probe at a region thereof exteriorally of the container and having an outlet capable of being opened or closed to control the flow of materials from said container via said sharp hollow probe into and out of said dispenser.

Said dispenser member can fit on said sharp hollow probe and extends to or substantially to the container wall and said sharp hollow probe is retained in said separate chamber of said container at least in part by a shoulder at or substantially at the inner surface of the container wall.

Said container can be made of flexible plastics material enabling manual manipulation of said sharp hollow probe relative to the wall through which it is to at least partly penetrate to mate with said dispenser.

In yet a further aspect the present invention consists in, in combination, a flexible plastics container for materials provided with a sharp hollow probe confined in a chamber separate from the main storage chamber of the container but having access to the contents thereof, and

a complementary mating dispenser whereby to effect dispensing of the contents of the container the probe can be mated with the dispenser after and/or while piercing the wall of the container thereby allowing the contents of the container to be dispensed through the dispenser.

Said flexible container can be a plastics bag and the separate chamber containing the probe has been formed by welding between overlying piles in a corner of a substantially flat plastics bag, a gap in a weld line to provide access to the main chamber of the bag.

Preferably said dispenser is recloseable.

According to another embodiment of the present invention a flexible plastic container for materials is provided with a sharp hollow probe confined in a separate chamber formed in the body of said container with access to the contents thereof and the consumer is provided with a complementary mating dispenser such that to effect dispensing of the contents of the container the consumer mates the probe with the dispenser so piercing the wall of the container and allowing the contents of the container to be dispensed through the dispenser.

Commonly the flexible plastic container would comprise a plastic bag, and the separate chamber to contain the probe, could suitably be formed by welding in a corner of the plastic bag with access to the contents of the container. However, the process of the invention is equally applicable to more complex forms of flexible plastic containers such as, for instance, the flat bottom flexible containers manufactured in the USA by Jebco Packaging Systems of Atlanta, Georgia in which circumstances the separate chamber could be formed in the neck area of the container.

The sharp hollow probe should be confined within the separate chamber in such a manner as to allow ready and convenient manual mating of the probe with its complementary dispenser and free access of the contents of the container to flow through the dispenser via the hollow probe during the dispensing process, which would normally by under gravity or by squeezing the container.

The sharp hollow probe may suitably by tubular and may have one or more internal channels connecting one end of the probe with the other to allow free flow of contents from the flexible container through the dispenser via the separate chamber.

The complementary mating dispenser may be recloseable and will have a dispensing orifice as required by the nature of the fluid contents of the container and by the required use of the said contents by the consumer.

Where the contents of the container are of food or medical products the container including the probe confined in its separate chamber may suitably be sterilised by radiation treatment, and the complementary mating dispenser would also be so sterilised, suitably packaged to maintain sterility until required for use.

The invention is applicable to a very wide range of flowable materials, but is particularly useful in the packaging of fluids where security from tampering, airtightness and sterility is important, since once filled and sealed the container retains its integrity until punctured at the start of the dispensing process. With the use of barrier films of which there are very many known in the art the barrier properties of the flexible container can be optimised to obtain the desired shelf-life of the contents thereof.

One embodiment of the invention is illustrated in the accompanying drawings in which:

BRIEF DESCRIPTION OF DRAWINGS

A preferred form of the present invention will now be described with reference to the accompanying drawings in which:

Figure 1: shows a probe or dispensing member in accordance with one possible aspect of the present invention [preferably formed from a plastics material such as polypropylene (it could be a metal or other material)] located in a separate chamber formed by overlying (preferably with a fold) plies of a plastics film and thereafter selectively heat sealing the plies to define the sealed environment and to differentiate a separate chamber or a

dispensing chamber from a main storage chamber but with access between the two by preferably a break in a weld line,

Figure 2: is a view AA of the sharp or sharp extremity region end of the dispensing member or probe showing the longitudinal conduit thereof and how that extends from its inlet to the plurality of openings at the sharp extremity region,

Figure 4: is a sectional transverse view similar to that of Figure 2 but this time of the complementary dispensing member [preferably of a plastics material such as LDHB] which can engage about the region of substantially constant exterior cross section that forms part of said flexible plastics material penetrating region of the probe or dispensing member, there being at that end thereof in sue to be remote from the plastics container a threaded region over which a cap member can fit to seal the container, there being shown an appropriate form of opening that can be modified and/or redirected as appropriate for a specific material,

Figure 5: is a view of a cap member sectioned in its bottom part to show the internal thread which will engage with the external thread of the member of Figure 3, and

Figure 6: shows Figures 2, 4 and 5 combined as they would be once the probe or dispensing member has been forced through the exterior wall of a container (preferably under the complementary action of the member of Figure 4 while capped with the cap of Figure 5).

Figures 7, 8 and 9: are side views of containers in accordance with further aspects of the present invention all of which include main and

dispensing chambers respectively and dispensing nozzles housed within the dispensing chambers.

MODES FOR CARRYING OUT INVENTION

In the preferred form of the present invention a bag 1 is formed by folding an appropriate plastics material such as polyethylene or laminates of various materials (with or without any barrier materials) about a fold line such as 2 and thereafter sealing with weld lines 3, 4 and 4 to provide the separate or dispensing chamber 6 in which the probe or dispensing member 7 is held captive but which can communicate via the access provided by the break at 8 in the weld line 4 which communicates with the main storage chamber 9.

The probe 7 is shown in Figure 2 having an enlarged end 10 preferably defining a should 11 which will not protrude through the film 11 (see Figure 6 which provides the exterior wall to the dispensing compartment 6).

The probe or dispensing member 7 has preferably an elongate shape having an elongate bore or passageway 12 which opens preferably into openings 13 at its sharpened end adapted to break the film 11 and cause the film 11 to ride up over and preferably still seal with the exterior surface preferably of constant cross section 14 until such time as that seal is enhanced by the butting arrangement of the end 15 of the complementary dispensing member 16 therewith as shown in Figure 6.

The complementary dispensing member has a threaded region 17 about which a cap 18 by an internal thread 19 can engage thus closing an outlet 20 (see Figure 6) between or prior to the dispensing of any fluid (liquid or powder) from the chambers 6 and 9 of the bag.

A person skilled in the art will appreciate how the flexible nature of the preferred plastics container enables the pointed region 21 to be brought against the fold line 2 or such form as it takes owing to the volume of fluid material in the container and to have

that then pressed therethrough while the other end of the probe 7 is anchored by holding from without. To facilitate the penetration the member 16 can be used simultaneously to constrain that area of the exterior wall through which the probe is to be thrust.

For Figure 7 the container is triangular with the dispensing chamber 23 being at the narrowest portion.

In Figure 8 the dispensing chamber 23 is formed at one side of the container. In Figure 9 the dispensing chamber 23 is positioned at the centre of the main chamber 22.

In all cases the dispensing chambers 23 are communicable with the main chamber(s) 22 through openings in weld lines 24 as previously described.

Whilst a specific form of nozzle has been described it is envisaged that other forms may be provided. The nozzle may be tapered. Caps may be free floating within the dispensing chamber(s) or be fitted onto the nozzle prior to assembly of the container.

The dispensing container described is suitable for dispensing fluids, discrete or loose material such as powders, granular articles or such like.

The combination can be kept in its combination prior to use in an outer container and that also forms part of the present invention. Alternatively is could be adhered or taped or otherwise located in conjunction exteriorally of the bag. For hygienic purposes if need be it could be separately packaged.

A person skilled in the art will appreciate that the present invention provides both apparatus and methods which provide an alternative to certain existing dispensing regimes for fluid materials.

CLAIMS:

1. A container for containing flowable material said container having a main chamber, a dispensing chamber communicable with the main chamber and a dispensing nozzle captured within the dispensing chamber the arrangement being such that the application of force can cause the dispensing nozzle to pierce the wall of the dispensing chamber allowing the contents to be dispensed from the container via the dispensing nozzle.

2. A container as claimed in claim 1 wherein the container is made from a flexible material.

3. A container as claimed in claim 2 wherein the flexible material is plastics film.

4. A container as claimed in claim 2 or claim 3 wherein the flexible material is a barrier film.

5. A container as claimed in any one of claims 1 to 4 wherein the dispensing chamber is positioned at an end or corner extremity of the container.

6. A container as claimed in any one of claims 1 to 5 wherein the dispensing chamber is positioned between two flanking main chambers.

7. A container as claimed in any one of claim 1 to 6 including a sealing cap for sealing the dispensing nozzle once it has been used.

8. A container for containing a material, said container comprising means providing a sealed environment for a material, said means defining a main chamber and a dispensing chamber, said dispensing chamber being in communication with said main chamber, and at least part, if not all, of said dispensing chamber being formed by a flexible plastics material (laminated or not), and

a dispensing member captive within said dispensing chamber

(i) defining a flexible plastics material penetrating region thereof having a sharp extremity region whereby an outlet from a conduit(s) therewithin upon relative movement between said flexible plastics material and said dispensing member caused by physical intervention exteriorally of said container, said sharp extremity region can pierce said flexible plastics material and thereafter said penetrating region while substantially maintaining a seal between itself and said flexible plastics material can position said outlet outside of said flexible plastics material, and

(ii) defining another region to remain captive within said dispensing chamber, said other region having at least one inlet for fluid materials leading to said conduit(s) and having an exterior thereof that does not facilitate the movement thereof through the flexible plastics material along with penetrating region.

9. A container as claimed in claim 8 wherein said means providing a sealed environment for a material is a bag structure formed from a film of flexible plastics material having appropriate seals between plies to define said dispensing and main chambers.

10. A container as claimed in claim 9 wherein said means providing a sealed environment is formed substantially flat from overlying regions of a flexible plastics material that has been folded and/or sealed one ply to the other to define the sealed environment and the two chambers.

11. A container as claimed in any one of the preceding claims wherein said dispensing member is an elongate member where the penetrating region is substantially of constant external cross section save for the sharp extremity region thereof and said region to remain captive defines a shoulder from the region of substantially

constant cross section which assists in its remaining captive within said dispensing chamber.

12. A container as claimed in claim 11 wherein said dispensing member is elongate and said conduit longitudinally extends from the captive region to the sharp extremity region.

13. In combination a container as claimed in any one of the preceding claims and a complementary dispensing member adapted to mate with said dispensing member, said complementary dispensing member facilitating the penetration of said plastics material by being positionable against the plastics material from the outside and having a passageway into which said penetrating region can be engage, the engaged condition enabling a discharge of material to be dispensed from the container via an outlet defined by said complementary dispensing member.

14. A combination as claimed in claim 13 wherein said complementary dispensing member includes means whereby its outlet can be closed.

15. A combination as claimed in claim 14 wherein said means whereby the outlet of said complementary dispensing member can be closed includes a capping member screw or otherwise engageable to close the outlet of said complementary dispensing member.

16. A method of opening a sealed plastics container containing a material, said container having a sharp hollow probe confined in a separate chamber having access to the contents of the container as a whole, which method comprises, by exterior manipulation of said probe relative to an exterior wall of the container, forcing part of said sharp hollow probe through an exterior wall of said container and engaging the same within a dispenser having means to seal about said hollow probe at a region thereof exteriorally of the container and having an outlet capable

of being opened or closed to control the flow of materials from said container via said sharp hollow probe into and out of said dispenser.

17. A method as claimed in claim 16 wherein said dispenser member fits on said sharp hollow probe and extends to or substantially to the container wall and said sharp hollow probe is retained in said separate chamber of said container at least in part by a shoulder at or substantially at the inner surface of the container wall.

18. A method as claimed in claim 16 or claim 17 wherein said container is a flexible plastics container enabling manual manipulation of said sharp hollow probe relative to the wall through which it is to at least partly penetrate to mate with said dispenser.

19. In combination,

a flexible plastics container for materials provided with a sharp hollow probe confined in a chamber separate from the main storage chamber of the container but having access to the constants thereof, and

a complementary mating dispenser whereby to effect dispensing of the contents of the container the probe can be mated with the dispenser after and/or while piercing the wall of the container thereby allowing the contents of the container to be dispensed through the dispenser.

20. A combination as claimed in claim 19 wherein said flexible container is a plastics bag and the separate chamber containing the probe has been formed by welding between overlying piles in a corner of a substantially flat plastics bag, a gap in a weld line to provide access to the main chamber of the bag.

21. A combination as claimed in claim 19 or claim 20 wherein said dispenser is recloseable.

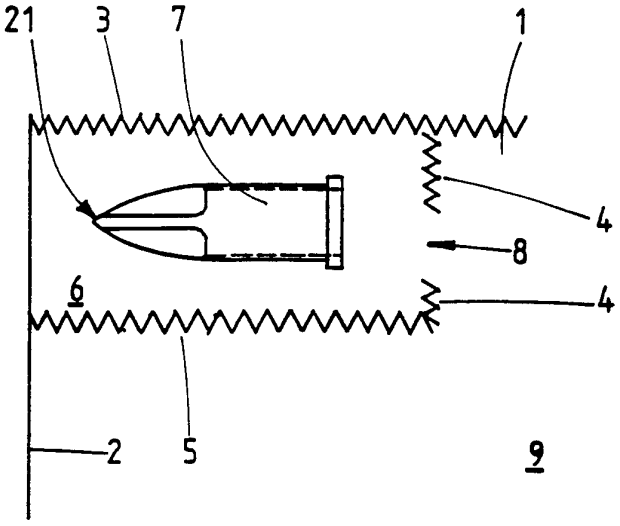

FIG. 1.

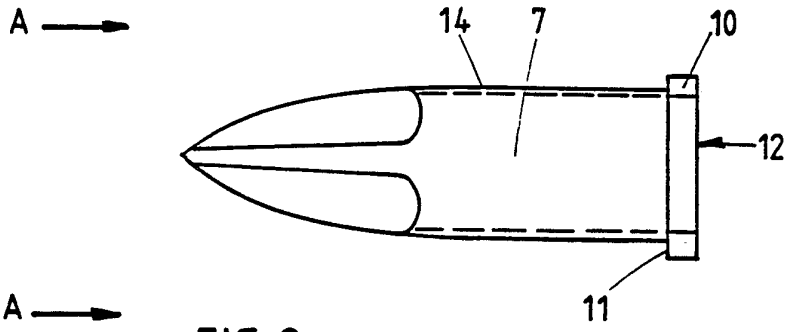

FIG. 2.

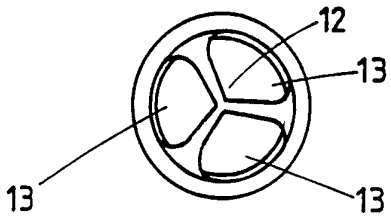

FIG. 3.

SUBSTITUTE SHEET

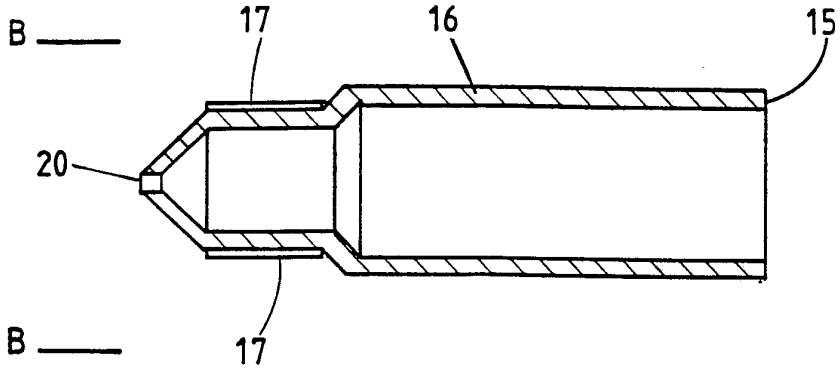

FIG. 4.

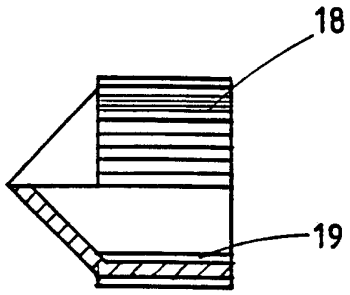

FIG. 5.

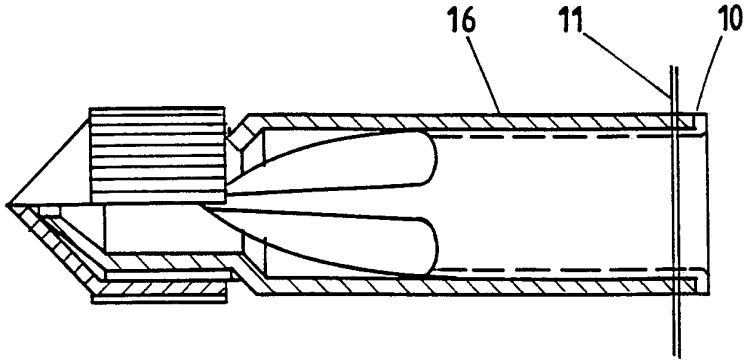

FIG. 6.

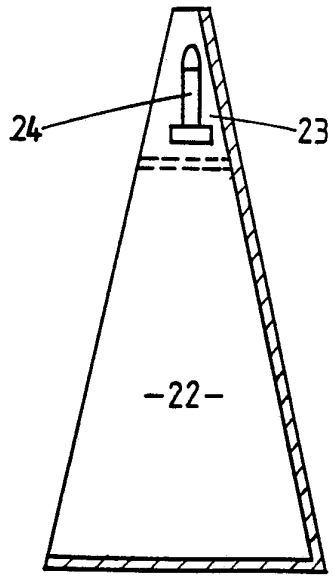

FIG. 7.

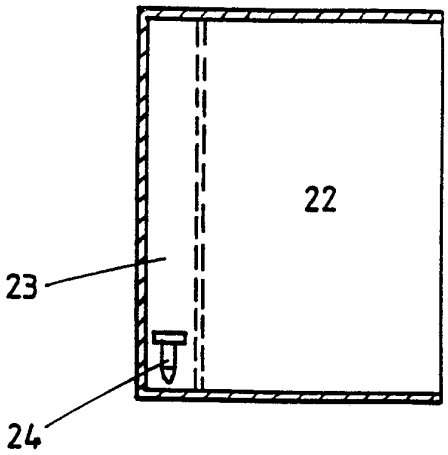

FIG. 8.

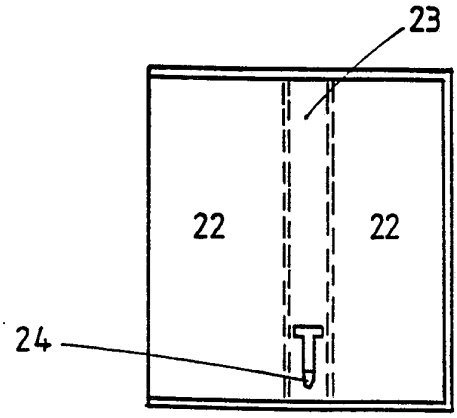

FIG. 9.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/NZ93/00003

A. CLASSIFICATION OF SUBJECT MATTER
Int. Cl.[5] B65D 33/38

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: B65D 33/36, 33/38, 75/54, 77/24, 77/28

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AU: IPC as above

Electronic data base consulted during the international search (name of data base, and where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
X,Y	AU 21934/62 (270625) (CONTINENTAL CAN COMPANY INC) 12 March 1964 (12.03.64)	1-7
X	AU 61759/86 (KONINKLIJKE EMBALLAGE INDUSTRIE VAN LEER BV) 5 March 1987 (05.03.87)	1-7
Y	GB,A,789368 (GLACES GERVAIS) 22 January 1958 (22.01.58)	1-7

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
22 April 1993 (22.04.93)	29 APR 1993 (29.04.93)

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Patent Document Cited in Search Report	Patent Family Member					
AU 61759/86	AT	44511	CA	1266028	DE	3664303
	EP	213673	ES	2001904	JP	62052064
	NL	8502366	NZ	217309	PT	83262
	US	4806021	ZA	8606375	ES	1001135