The invention relates to a pressurised container (1) comprising a hollow cylindrical can (2) having a maximum outer diameter (21), the can (2) having an opened end (22) and forming a dome (23) in the opened end (22), a mounting cup (3) crimped onto the opened end (22), the mounting cup (3) comprising a valve (30), a nozzle (4) co-operating with the valve (30) and having catching means (40) engaging with a peripheral groove or ridge (24) provided on the can (2) where the dome (23) merges with the rest of the can (2), and an extra element (5) covering at least partially the nozzle (4) and having a part (50) extending beyond the peripheral groove or ridge (24) in the longitudinal direction (20) opposite to the opened end (22).

The container (1) according to the invention is characterised in that the can (2) is provided with a substantially cylindrical section (25) having a reduced diameter (26), the reduced diameter (26) being substantially inferior to the maximum outer diameter (21) of the can (2) and the substantially cylindrical section (25) mating the part (50) extending beyond the peripheral groove or ridge (23) in the longitudinal direction (20) opposite to the opened end (22).

FIG. 2

Pressurized container with nozzle and extra element
Description

Technical field

[0001] The present invention relates to a pressurised container fitted with a nozzle and an extra element.

Background of the invention

[0002] Pressurised containers are widely used, particularly in the field of consumer products. Such containers at least contain two elements being a can and a mounting cup. The can is usually formed from a hollow cylindrical body and has an opened end. As the can is normally such that the cylindrical body has a diameter larger than the diameter of the opening on the opened end, the junction between the opening on the opened end and the cylindrical body is made by means of a dome which is formed in the opened end, thus joining the cylindrical body to the opening. The processes for manufacturing such cans, as described for example in US-A-4 441 354, is such that the cans have a shape which correspond geometrically to a surface generated by rotation of a profile around an axis, which is the axis of the cylindrical can. The maximum outer diameter of the can normally is the external diameter of the cylindrical body, as the opening usually has a smaller diameter. The mounting cup is usually crimped onto the opened end. Typically, the opened end is provided with a curled portion for this purpose. The mounting cup comprises a valve which allows to control passage of a product contained in the container. Normally, the valve is the only possible passage for the product. Actuation of the valve is typically provided by pressing on a stem comprised in the valve mechanism. However, in order to facilitate control and to allow an ergonomic design, the container is often provided with a nozzle. The nozzle is particularly used for dispensing foaming composition. It is a structure which is co-operating with the valve, so that a user will have control on the passage of the product through action on the nozzle, and not directly on the valve. The nozzle has to be fixed onto the container. In order to achieve this, the nozzle may be provided with catching means such as a resilient clipping part, the catching means engaging with a peripheral groove or ridge which is provided on the can for this purpose.

[0003] Usually, this peripheral groove or ridge is provided on the can where the dome merges with the rest of the can. The can may be provided with a groove as described in GB-B-1 406 357 or with a ridge as in EP-A-798 232 for example. Furthermore, an extra element may be provided for covering at least partially the nozzle. This element may be a tamper proof device as in US-A-3 946 911 or a cap. For example this extra element should also be fixed onto the container, and this is usually achieved by providing it with a part extending longitudinally in the direction opposite to the opened end beyond the peripheral groove or ridge on which the nozzle is engaged, so that the part extending longitudinally beyond the groove or ridge would engage with the part of the nozzle which is in the region of the groove or ridge.

[0004] The present invention concerns a pressurised container comprising a hollow cylindrical can having a longitudinal axis and a maximum outer diameter in a plane normal to the longitudinal axis, the can having an opened end and forming a dome in the opened end, a mounting cup crimped onto the opened end, the mounting cup comprising a valve, a none co-operating with the valve and having catching means engaging with a peripheral groove or ridge provided on the can where the dome merges with the rest of the can, and an extra element covering at least partially the nozzle and having a part extending longitudinally beyond the peripheral groove or ridge in the direction opposite to the opened end. Such a pressurised container is known from US-A-3 946 911.

[0005] Among the advantages of such pressurised containers is their improved ergonomic design allowed by the nozzle. The nozzle also allows to dispense foaming product. Furthermore, the extra element can be designed for allowing tamper proof protection or can simply be a cap protecting the nozzle and avoiding accidental use which would occur by inadvertently actuating the valve through the nozzle.

[0006] While having these and other advantages, such pressurised containers have disadvantages. Indeed, as the extra element is provided with a part extending longitudinally beyond the groove or ridge and in the direction opposite to the opened direction, it is extending longitudinally at least over part of the cylindrical body of the can. Therefore, the part extending longitudinally beyond the groove or ridge also extends in the radial direction beyond the maximum outer diameter of the can. This extension in the radial direction is such that if a plurality of containers are being placed side by side, the containers will be in contact with each other at their point of maximum outer diameter which corresponds to this extension in the radial direction of the part extending longitudinally beyond the groove or ridge. As this contact is normally not provided on substantially the whole length of the container, the containers will tend to be tilted if they are pressed the one against the other as happens on a production line. This is called shingling of the containers. Shingling should be avoided as it causes the containers to fall if a large quantity of containers are pressed side to side, in particular if they are in a production line. Indeed, if the first container is upright, and if the second container is pressed side to side against the first container, the second container will be in contact with the first container at the level of maximum outer container diameter, i.e. at the level of the radial extension of the longitudinally extending part of the extra element, and the rest of the second container will be tilted at an angle to have a second point of contact which normally corresponds to the
base of the can when the container is upright, the base of the container having usually a diameter being the maximum outer diameter of the can, but being smaller than the maximum outer diameter of the extra element corresponding to of the radial extension of the longitudinally extending part of the extra element, so that the axis of the second container is not parallel to the axis of the first container but is tilted at an angle. If a third container is pressed against the second container, the second container will be tilted of the same angle compared to the second container, and of twice this angle compared with the first container. Tilting goes on with following containers, so that they cannot be kept in line, shingling occurring. This may result in containers falling, thus requiring to stop a production line, for example. This has a significant influence on production costs. Furthermore, this has implications for packing. Indeed, the containers will be pressed against each other when packed, the size of the package being dependant on the number of containers to insert, on their height and on their maximum outer diameter. Therefore, as the extending part of the extra element is extending in the radial direction beyond the maximum outer diameter of the can, the package will be sized accordingly, thus having a larger size than a package having the same number of containers without the extra element which would be such that the maximum outer diameter of the container would be the maximum outer diameter of the can.

[0007] The invention seeks to provide a pressurised container of the above mentioned kind which does not involve shingling.

Summary of the invention

[0008] In accordance with the invention, this object is accomplished in a pressurised container of the above mentioned kind in that the can is provided with a substantially cylindrical section having a reduced diameter, the reduced diameter being substantially inferior to the maximum outer diameter of the can and the substantially cylindrical section mating the part extending longitudinally beyond the peripheral groove or ridge in the direction opposite to the opened end.

[0009] A container in accordance with the invention has a number of advantages. Since the can is provided with a substantially cylindrical section having a reduced diameter, the container can have a mounting cup, a nozzle and an extra element while not being subject to shingling. Since the substantially cylindrical section is mating the part extending beyond the peripheral groove or ridge, the extra element can have a length along the axis of the container which can be set freely without influence on the full length of the container and without introducing shingling. Since the can is provided with a substantially cylindrical section having a reduced diameter, it may be possible to accommodate onto the container a mounting cup, a nozzle and an extra element which would normally be accommodated onto a container having a can having a smaller maximum outer diameter than the maximum outer diameter of the can provided with the section having a reduced diameter.

Detailed description of the invention

[0010] The invention will now be described by way of example and with reference to the accompanying drawings in which:

Figure 1 is a longitudinal partial cross-sectional view of a pressurised container not according to the invention illustrating the region of the peripheral groove or ridge.

Figure 2 is a longitudinal partial cross-sectional view of a pressurised container according to the invention illustrating the region of the peripheral groove or ridge.

[0011] The invention relates to a pressurised container comprising a hollow cylindrical can having a longitudinal axis. Most common types for such cans are steel and aluminium cans. Cans made out of steel, preferably tin plated steel, may be made out of two parts, such as the "cone less can" of Carrnaudmetalbox for example, but are normally comprising three parts: a bottom base, a top dome and a side cylinder. These three components are co-operating in such a manner that the base and the dome are positioned onto the extremities of the side cylinder. The side cylinder is generally made from a thin steel sheet which is welded to form the desired cylinder. The base has normally no opening, apart from safety high pressure release mechanisms.

However, the dome is a part which usually comprises a curled portion defining a circular opening. Indeed, the can according to the invention has an opened end and is forming a dome at the opened end. Cans made out of aluminium have a structure which is different in that they are normally composed of a unitary mono-block part which is machined using processes such as extrusion or cold drawing whereby a flat piece of metal is formed into a hollow cylindrical body. Indeed, the can of the container according to the invention is preferably a unitary aluminium can. This means that there is no need for assembling a base, a dome and sides. However, such aluminium cans are normally also provided with a curled portion. The can and the curled portion are usually formed using backward extrusion or deep drawing and stretching. Forming of such a can is described for example in US-A-4 441 354.

[0012] The can according to the invention has a maximum outer diameter in a plane normal to the longitudinal axis of the can. This diameter corresponds to the diameter of the section of the can which is the wider. In a normal can, this diameter would correspond to the diameter of the can directly beyond the dome, and the
can would keep this diameter from the end opposite the opened end up to merging with the dome. By a dome, it has to be understood that the can has a section having a diameter progressively substantially reducing when travelling along its longitudinal axis from the merging region up to the opened end region.

[0013] As such a can is intended for use in a pressurised container, a mounting cup is crimped onto the opened end of the can. The mounting cup typically has a body made of metal such as aluminium or steel. Once the mounting cup is crimped onto the can, the hollow volume within the can is isolated from the outside, unless the valve provided on the mounting cup is actuated. Indeed, the mounting cup of the container according to the invention comprises a valve. The valve is normally made from a stem which allows passage of a pressurised content of the container if the stem is displaced along its axis.

[0014] In order to facilitate actuation of the valve, the container according to the invention is also provided with a nozzle. The nozzle is co-operating with the valve. In case of use of a stem, the nozzle would typically comprise a part which co-operates with the stem so as to allow displacement of the stem when a pressure is applied onto the nozzle, for example using a finger. Design of the nozzle could facilitate displacement of the stem by a leverage effect. The nozzle may have other uses such as facilitating foaming of a foaming content, or improving the ergonomic characteristics of the container. Such a nozzle is typically made from thermoplastic resins, preferably poly-olefin resins, and most preferably of poly-ethylene or poly-propylene. It may also consist of a blend of these. According to the invention, the nozzle is having catching means engaging with a peripheral groove or ridge provided on the can where the dome merges with the rest of the can. Indeed, the can according to the invention has a groove or ridge which is typically made according to the method described in GB-B-1 406 357 for a groove or EP-A-0 498 232 for a ridge. The catching means are engaging with the groove or ridge so as to retain the nozzle in position. Typically, the nozzle is covering entirely the dome of the can and the mounting cup, so that they are not visible. However, a nozzle may cover the dome and the mounting cup only partially. The catching means may consist of a circular flexible and resilient bead provided at an extremity of the nozzle. The nozzle is normally designed in such a manner that it allows passage of the content of the container when the valve is actuated.

[0015] According to the invention, the container further comprises an extra element. The extra element is covering at least partially the nozzle. This means that it should be possible to place or remove the extra element without removing or displacing the nozzle. Such an extra element could serve various purposes. The extra element could serve as a temper proof element as in US-A-3 946 911. It could also serve as a protective cap, similarly to the protective cap presented in GB-B-1 406 357, for preventing undesired actuation of the valve due to an action on the nozzle. Other uses include a dosing cap. The container according to the invention is particularly suited when using an extra element as a dosing cap. Indeed, a dosing cap should contain a volume corresponding to a dose of product. If the extra element has a full height of L and an external diameter of D, the maximum volume it can contain is $L \times \pi D^2 / 4$. As full height of the container should be minimum to facilitate packing or shelving, it is preferred that the full height of the container with or without the cap on is substantially unchanged. As the extra element normally has a flat portion in a plane substantially normal to the longitudinal axis of the can when it is on the container, the flat portion being at a longitudinal extremity of the container which is on the side of the opened end of the can, the flat portion covering a first longitudinal extremity of the nozzle opposite to the second longitudinal extremity of the nozzle which is on the side of the catching means of the nozzle, the distance between the plane normal to the longitudinal axis of the can and comprising the first extremity of the nozzle and the plane normal to the longitudinal axis of the can and comprising the extremity of the container should be substantially zero. In other words, if when the container is upright dome, mounting cup and nozzle are on the top part of the container, and if an extra element covers these, the top of this extra element should be almost in contact with the top of the nozzle in order to avoid waste of space. Indeed, if the extra element is a dosing cap or is suitable or intended for such a use, it should have a flat portion which can serve as a base. Indeed, the extra element would be more suitable for dosing if it can be laid stable on its base during dosing. It should also be noted that in case of use of the extra element as a dosing cap, the part extending longitudinally beyond the groove or ridge in the direction opposite to the opened end of the can is preferably forming a skirt, thus having a substantially cylindrical part covering the cylindrical section of the container having a reduced diameter. Such a skirt would be on the longitudinal end of the dosing cap opposite to the base of the dosing cap, so that it would define the opening of the dosing cap.

[0016] Considering this limitation on the full height of the can, existing extra elements are often extending longitudinally beyond the region where the dome merges with the rest of the can, in the direction opposite to the opened end of the can. This is due for example to the fact that if L is substantially larger than the height of the nozzle, and if the full height of the container is minimised, the extra element will extend longitudinally in the direction opposite to the opened end beyond the extremity of the nozzle having the catching means on a distance substantially equal to the difference of L to the full length of the nozzle. This leads in existing cans to extra elements covering the can in the part beyond the dome, therefore leading to having an outer diameter for
the extra element which is larger than the outer diameter of the can itself, thus inducing shingling problems, as explained above. Such a structure is presented on figure 1 and also correspond to the container disclosed in US-A-3 946 911.

[0017] According to the invention, the can of the container is provided with a substantially cylindrical section having a reduced diameter, the reduced diameter being substantially inferior to the maximum outer diameter of the can. This section having a reduced diameter is made for mating the part of the extra element extending beyond the peripheral groove or ridge in the direction opposite to the opened end. When such a section with a reduced diameter mating the extending part is provided, the extended part of the extra element can be recessed so that the outer diameter of the extra element can come flush flat with the maximum outer diameter of the can for example, thus preventing shingling to occur. In particular, the part extending longitudinally beyond the groove or ridge could have a thickness in the radial direction, i.e. comprised in a plane normal to the longitudinal direction and concurrent with the longitudinal direction, substantially equal to half of the difference between the maximum outer diameter of the can and the outer diameter of the substantially cylindrical section having a reduced diameter. Indeed, in such a case the longitudinally extending extra part beyond the groove or ridge would have an inner face in contact with the outer face of the substantially cylindrical section having a reduced diameter while being flush flat with the maximum outer diameter of the can.

[0018] This would not be required for example if the extra element did not have a part extending beyond the groove or ridge in the direction opposite to the opened end, indeed in such a case it could be sufficient to machine a deeper groove or ridge. Indeed, if the extra element is only extending from the groove or ridge into the direction of the opened end, it is at the level of the groove or ridge of the dome. As the groove or ridge and the dome normally have a reduced diameter compared to the maximum outer diameter on the existing cans, there can be a sufficient difference between the maximum outer diameter of the can and the outer diameter of the groove or ridge and dome to fit an extra element which would not extend in the radial direction beyond the maximum outer diameter of the can, thus avoiding shingling. However, such a configuration does not allow to use long extra elements in the longitudinal direction without shingling. Therefore, the invention is particularly suited for extra element extending beyond the groove or ridge in the longitudinal direction and in the direction opposite to the opened end, whereby shingling can be avoided, in particular if the extra element itself has a maximum outer diameter in a plane normal to the longitudinal axis of the can, the maximum outer diameter of the extra element being inferior or equal to the maximum outer diameter of the can.

[0019] The invention more particularly applies to containers containing a foaming composition. Indeed, dispensing a foaming composition will often be done with a nozzle, as is usually done for shaving foam, hair mousse, whipped cream or for laundry foam. Furthermore, as a foaming composition will be dispensed in relatively large volumes, accidental dispensing should be avoided, therefore extra elements are also often required, either for temper proof usage or for protection as a cap. Additionally, and more specifically when applied to laundry foaming compositions as disclosed for example in EP-A-677 577, such compositions could require dosing in relatively large volumes of the order of 150 to 350 ml, preferably 200 to 320ml, for a can having a maximum outer diameter of 57 mm and a height of 178 mm, or for a can having a maximum outer diameter of 66 mm and a height of 263 mm. In such a case, large dosing caps should be used, therefore the invention is of particular benefit to such cases. When the extra element is for example a protecting cap, the extra element should cover completely the nozzle in order to protect the nozzle completely from undesired actuation or damage. In such a case, the extra element may have a part extending longitudinally beyond the catching means of the nozzle in the direction opposite to the opened end.

[0020] In a preferred embodiment according to the invention, the part of the can starting at the section having a reduced diameter and finishing at the opened end comprising the dome and a groove has a maximum outer diameter inferior or equal to the reduced diameter. This is particularly suited when the longitudinally extending part of the extra element extending beyond the groove has an inner diameter substantially equal to the reduced diameter, so that removal of the extra element by pulling it in the longitudinal direction towards the opened end would not be hindered by having a section of the can in the part starting at the section having a reduced diameter and finishing at the opened end which would have a diameter such as to prevent removal, as would be the case if it has at a certain level a diameter superior to the inner diameter of the longitudinally extending part. This should also apply to the maximum outer diameter of the nozzle, which should also not exceed the inner diameter of the longitudinally extending part. However, it could be preferred that removal of the extra element is at least partially hindered to avoid undesired removal, whereby the nozzle or part of the can starting at the section having a reduced diameter and finishing at the opened end would have a maximum outer diameter exceeding the inner diameter or the minimum inner diameter of the longitudinally extending part of the extra element, in such a manner that such longitudinally extending part will have to be forced away for the minimum inner diameter of the longitudinally extending part to be forced over the maximum outer diameter of the part of the can starting at the section having a reduced diameter and finishing at the opened end. It is preferred in such a case that the extra element if made from a resilient and flexible
material such as thermoplastic resins, as poly-propylene or poly-ethylene for example. Indeed, the extra element may comprises releasable fixing means cooperating with the nozzle for example.

[0021] Among other advantages of using the container according to the invention is to allow use of a single type of mounting cup, nozzle and extra element on cans having different volumes. Indeed, standardised cans normally have an inner volume varying with their maximum outer diameter. Indeed, cans suitable for containing a larger volume will normally have a larger maximum outer diameter. In such a case, the section having a reduced diameter according to the invention may be such that the reduced diameter is kept constant for different sizes of cans, thus allowing use of the same mounting cup, nozzle or extra element for different sizes of cans, thus allowing to further lower complexity on production line for example. Indeed, cans with different maximum outer diameters could be shaped for having a reduced section, a dome and a groove or ridge having the same dimensions.

[0022] Figure 1 illustrates part of a traditional container without the substantially cylindrical section with reduced diameter according to the invention, whereby the extra element 5 having a part 50 extending longitudinally beyond the groove 24 in the direction opposite to the opened end 22 is extending in the radial direction beyond the maximum outer diameter 21 of the can 2, therefore producing shingling with an angle which can be approximated by its tangential value corresponding to the ratio of half of the difference between the maximum outer diameter 51 of the extra element 5 and the maximum outer diameter 21 of the can 2 to the length of the part of the can comprised between the groove 24 and the end of the can opposite to the opened end 22.

[0023] Figure 2 illustrates part of a container 1 according to the invention, whereby a mounting cup 3, a nozzle 4 and an extra element 5 are positioned onto a can 2 according to the invention, whereby the can 2 has a section 25 having a reduced diameter 26 and mating the longitudinally extending part 50 of the extra element 5 beyond the groove 24 and in the direction opposite to the opened end 22. The mounting cup 3 is fixed onto the can 2 by crimping on a curled portion of the can 2 at the opened end 22 of the can 2, the nozzle 4 being fixed by catching means 40 engaging with the groove 24. The extra element 5 extends at least partially longitudinally beyond the groove 24 over the section 25 having a reduced diameter 26 and mating the extra element 5 in its longitudinally extending part 50. By mating it is meant that the section 25 having a reduced diameter 26 is such that the extra element 5 could not be fitted conveniently onto the can 2 in the absence of the section 25 having a reduced diameter 26. The section 25 having a reduced diameter 26 could for example have a length substantially equal to the longitudinally extending part 50.

Claims

1. A pressurised container (1) comprising a hollow cylindrical can (2) having a longitudinal axis (20) and a maximum outer diameter (21) in a plane normal to the longitudinal axis (20), the can (2) having an opened end (22) and forming a dome (23) in the opened end (22), a mounting cup (3) crimped onto the opened end (22), the mounting cup (3) comprising a valve (30), a nozzle (4) co-operating with the valve (30) and having catching means (40) engaging with a peripheral groove or ridge (24) provided on the can (2) where the dome (23) merges with the rest of the can (2), and an extra element (5) covering at least partially the nozzle (4) and having a part (50) extending longitudinally beyond the peripheral groove or ridge (24) in the direction opposite to the opened end (22), characterised in that the can (2) is provided with a substantially cylindrical section (25) having a reduced diameter (26), the reduced diameter (26) being substantially inferior to the maximum diameter (21) and the substantially cylindrical section (25) mating the part (50) extending longitudinally beyond the peripheral groove or ridge (24) in the direction opposite to the opened end (22).

2. The pressurised container (1) according to claim 1, whereby the extra element (5) is a cap suitable for dosing, the part (50) extending longitudinally forming a skirt.

3. The pressurised container according to claim 2, whereby the container (1) contains a foaming detergent composition.

4. The pressurised container (1) according to claim 1, whereby the extra element (5) is covering completely the nozzle (4).

5. The pressurised container according to claim 4, whereby the extra element (5) has a flat portion in a plane substantially normal to the longitudinal axis (20) of the can (2), the flat portion being at a longitudinal extremity of the container (1) which is on the side of the opened end (22) of the can (2), the flat portion covering a first longitudinal extremity of the nozzle opposite to the second longitudinal extremity of the nozzle, the second longitudinal extremity of the nozzle (4) being on the side of the catching means (40) of the nozzle (4), whereby the distance between the plane normal to the longitudinal axis (20) of the can (2) and comprising the first extremity of the nozzle (4) and the plane normal to the longitudinal axis (20) of the can (2) and comprising the extremity of the container (1) is substantially zero.

6. The pressurised container (1) according to claim 1, whereby the extra element (5) has a maximum

Figure 2 illustrates part of a container 1 according to the invention, whereby a mounting cup 3, a nozzle 4 and an extra element 5 are positioned onto a can 2 according to the invention, whereby the can 2 has a section 25 having a reduced diameter 26 and mating the longitudinally extending part 50 of the extra element 5 beyond the groove 24 and in the direction opposite to the opened end 22. The mounting cup 3 is fixed onto the can 2 by crimping on a curled portion of the can 2 at the opened end 22 of the can 2, the nozzle 4 being fixed by catching means 40 engaging with the groove 24. The extra element 5 extends at least partially longitudinally beyond the groove 24 over the section 25 having a reduced diameter 26 and mating the extra element 5 in its longitudinally extending part 50. By mating it is meant that the section 25 having a reduced diameter 26 is such that the extra element 5 could not be fitted conveniently onto the can 2 in the absence of the section 25 having a reduced diameter 26. The section 25 having a reduced diameter 26 could for example have a length substantially equal to the longitudinally extending part 50.
outer diameter (51) in a plane normal to the longitudinal axis (20) of the can (2), the maximum outer diameter (51) of the extra element (5) being inferior or equal to the maximum outer diameter (21) of the can (2).

7. The pressurised container (1) according to claim 1, whereby the part (50) extending longitudinally beyond the peripheral groove or ridge (24) has a thickness in the radial direction substantially equal to half of the difference between the maximum outer diameter (21) of the can (2) and the outer diameter (26) of the substantially cylindrical section (25) having a reduced diameter (26).

8. The pressurised container (1) according to claim 1 whereby the part (50) of the can (2) starting at the section (25) having a reduced diameter (26) and finishing at the opened end (22) has a maximum outer diameter inferior or equal to the reduced diameter (26).

9. The pressurised container (1) according to claim 1 whereby the extra element (5) is comprising releasable fixing means co-operating with the nozzle (4).

10. The container (1) according to claim 1, whereby the can (2) is a unitary aluminium can.
## DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document with indication, where appropriate, of relevant passages</th>
<th>Relevant to claim</th>
<th>CLASSIFICATION OF THE APPLICATION (Int.Cl.6)</th>
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### TECHNICAL FIELDS SEARCHED (Int.Cl.6)

- B65D
- B05B

The present search report has been drawn up for all claims.

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<th>Place of search</th>
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<tr>
<td>THE HAGUE</td>
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<td>Gino, C</td>
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### CATEGORY OF CITED DOCUMENTS

- **T**: theory or principle underlying the invention
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