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(54) **OPENING DEVICE FOR A PACKAGE AND PACKAGE HAVING AN OPENING DEVICE**

(57) Opening device (3) for a package (1) having a main body (2) comprising a designated pour opening and being filled with a pourable product. The opening device comprises at least a base frame (6) coupling and/or configured to couple the opening device to the main body about the designated pour opening and a covering element (7) hinged to the base frame (6) and angularly movable around a respective hinge axis (B) between a closed position in which the covering element closes and/or is

designed to close the designated pour opening and an open position in which the covering element opens and/or is configured to open the designated pour opening. The opening device further comprises a retaining group (10) configured to retain the covering element in the open position and/or in which the retaining group obstacles an angular movement from the open position to the closed position.

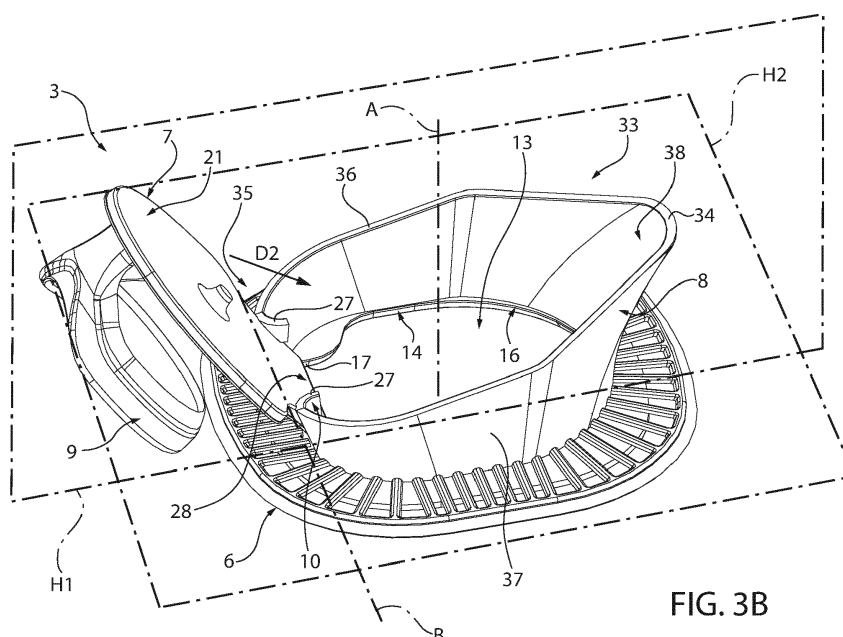


FIG. 3B

Description

TECHNICAL FIELD

[0001] The present invention relates to an opening device for a package, in particular a package having a main body, filled with a pourable product, even more particular filled with a pourable food product.

[0002] Advantageously, the present invention also relates to a package, in particular a package having a main body, filled with a pourable product, even more particular filled with a pourable food product, and having an opening device.

BACKGROUND ART

[0003] As is known, many pourable food products, such as fruit juice, UHT (ultra-high-temperature treated) milk, wine, tomato sauce, etc., are sold in packages, in particular sealed packages, made of sterilized packaging material.

[0004] A typical example is the parallelepiped-shaped package for pourable food products known as Tetra Brik Aseptic (registered trademark), which is made by sealing and folding a laminated strip packaging material. The packaging material has a multilayer structure comprising a carton and/or paper base layer, covered on both sides with layers of heat-seal plastic material, e.g. polyethylene. In the case of aseptic packages for long-storage products, the packaging material also comprises a layer of oxygen-barrier material, e.g. an aluminum foil, which is superimposed on a layer of heat-seal plastic material, and is in turn covered with another layer of heat-seal plastic material forming the inner face of the package eventually contacting the food product.

[0005] Some known packages comprise each a sealed main body having a designated pour opening and an opening device arranged on the main body and designed to close the designated pour opening at least prior to the first use. Some known opening devices comprise a strap, which seals the designated pour opening and which needs to be removed from the main body prior to the first use of the package.

[0006] Some variants of opening devices also comprise a collar arranged about the designated pour opening and a lid, which can be selectively coupled or uncoupled from the collar. In these cases, prior to the first use, the lid needs to be removed from the collar and then the user can access and remove the strap.

[0007] Even though the known opening devices work satisfyingly well, a desire is felt in the sector to further improve such opening devices.

DISCLOSURE OF INVENTION

[0008] It is therefore an object of the present invention to provide in a straightforward and low-cost manner an improved opening device for a package, in particular a

package having a main body, filled with a pourable product, even more particular filled with a pourable food product.

[0009] It is a further object of the present invention to provide in a straightforward and low-cost manner a package, in particular a package having a main body, filled with a pourable product, in particular filled with a pourable food product, having an improved opening device.

[0010] According to the present invention, there is provided an opening device according to the independent claims.

[0011] Further advantageous embodiments of the opening device are specified in the respective dependent claims.

[0012] According to the present invention, there is also provided a package according to claims 13 to 15.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] A non-limiting embodiment of the present invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a schematic perspective view of a package having an opening device according to the present invention being in a first configuration, with parts removed for clarity;

Figure 2 is a schematic perspective view of the package of Figure 1 with the opening device being in a second configuration, with parts removed for clarity; Figures 3a and 3b are enlarged perspective views of the opening device of Figures 1 and 2 being respectively in the first configuration and second configuration, with parts removed for clarity;

Figures 4a and 4b are enlarged section views of the opening device being in respectively the first configuration and second configuration, with parts removed for clarity; and

Figure 5 is an enlarged perspective view of a detail of the opening device, with parts removed for clarity.

BEST MODES FOR CARRYING OUT THE INVENTION

[0014] Number 1 indicates as a whole a package comprising:

- a (sealed) main body 2, in particular a sealed composite body, being filled with a pourable product, in particular a pourable food product, and having a designated pour opening configured to allow for an outflow of the pourable product from main body 2; and
- an opening device 3 coupled to main body 2 and arranged and/or arrangeable about the designated pour opening and configured to (selectively) close and open the designated pour opening.

[0015] According to some preferred non-limiting embodiments, main body 2 is obtained from a packaging

material, in particular a composite packaging material, having a multilayer structure (not shown and known as such).

[0016] Preferentially, the packaging material is provided in the form of a web.

[0017] Preferentially, main body 2 is obtained by forming a tube from the packaging material, longitudinally sealing the tube, filling the tube with the pourable product and by transversally sealing and cutting the tube.

[0018] Preferentially, the packaging material comprises at least one layer of fibrous material, such as e.g. paper or cardboard, and at least two layers of heat-seal plastic material, e.g. polyethylene, interposing the layer of fibrous material in between one another. One of these two layers of heat-seal plastic material defines the inner face of main body 2 contacting the pourable product.

[0019] According to some possible non-limiting embodiments, the packaging material may also comprise a layer of gas- and light-barrier material, e.g. aluminum foil or ethylene vinyl alcohol (EVOH) film, in particular being arranged between one of the layers of the heat-seal plastic material and the layer of fibrous material. Preferentially, the packaging material also comprises a further layer of heat-seal plastic material being interposed between the layer of gas- and light-barrier material and the layer of fibrous material.

[0020] According to some non-limiting embodiments, opening device(s) 3 is/are applied to the packaging material prior to arranging the packaging material within or during advancement of the packaging material through a packaging machine for forming, filling and sealing main bodies 2 from the packaging material carrying opening devices 3.

[0021] Alternatively, opening device(s) 3 could be applied onto main body(ies) 2.

[0022] Preferentially, application of opening devices 3 to the packaging material and/or main body(ies) 2 may occur by means of a molding process and/or adhesive bonding and/or ultrasonic bonding.

[0023] Even more preferentially, opening devices 3 may be molded in a single piece, in particular onto the packaging material and/or main body(ies) 2.

[0024] With particular reference to Figures 1 and 2, main body 2 extends along a longitudinal axis, a first transversal axis and a second transversal axis. In particular, the extension of package 1 along the longitudinal axis is larger than the extension of package 1 along the first transversal axis and the second transversal axis.

[0025] Preferentially, main body 2 is parallelepiped-shaped.

[0026] In more detail, main body 2 may comprise a first wall portion, in particular being transversal, even more particular perpendicular, to the longitudinal axis, from which main body 2 extends along the longitudinal axis. Preferentially, the first wall portion defines a support surface of package 1, in particular of main body 2, which is designed to be put in contact with a support, such as e.g. a shelf, when, in use, being e.g. exposed within a sales

point or when being stored. In particular, when being arranged on a support the first wall portion defines a bottom wall portion of main body 2 and/or package 1.

[0027] In further detail, main body 2 may also comprise a plurality of lateral walls 4 being (fixedly) connected to the first wall portion and extending, in particular substantially parallel to the longitudinal axis, from the first wall portion.

[0028] In even further detail, main body 2 may also comprise a second wall portion 5 opposite to the first wall portion and being (fixedly) connected to at least some of lateral walls 4. In particular, lateral walls 4 are interposed between the first wall portion and second wall portion 5. In particular, when main body 2 is arranged on a support second wall portion 5 defines a top wall portion.

[0029] According to the non-limiting embodiment shown, the first wall portion and second wall portion 5 are inclined with respect to one another (i.e. the first wall portion and second wall portion 5 are not parallel to one another). In particular, while the first wall portion has a horizontal orientation when being placed on the support, second wall portion 5 is inclined with respect to the first wall portion and the support.

[0030] Alternatively, the first wall portion and second wall portion 5 may be parallel to one another.

[0031] According to some preferred non-limiting embodiments, second wall portion 5 carries and/or comprises the designated pour opening and opening device 3 is mounted to second wall portion 5.

[0032] Furthermore, package 1, in particular main body 2, comprises an inner space configured to contain and/or containing the pourable product.

[0033] With particular reference to Figures 1 to 5, opening device 3 comprises at least:

- a base frame 6 coupling and/or configured to couple the opening device to main body 2 about the designated pour opening; and
- a covering element 7 designed to (selectively) close and open the designated pour opening.

[0034] Moreover, opening device 3 may comprise a collar 8 connected to and extending away from base frame 6, in particular along a longitudinal axis A. Preferentially, longitudinal axis A is perpendicular to base frame 6.

[0035] Additionally, opening device 3 may comprise a gripping tab, or ring 9 (integrally) connected to covering element 7, in particular designed for allowing and/or facilitating manipulation of covering element 7.

[0036] In more detail, covering element 7 is hinged to base frame 6 and is movable around a respective hinge axis B. In particular, hinge axis B being defined by the hinge hinging covering element 7 to base frame 6.

[0037] Preferentially, covering element 7 is angularly movable around hinge axis B between a closed position (see Figures 3a and 4a) in which covering element 7 closes and/or is designed to close the designated pour

opening and an open position (see Figures 3b, 4b and 5) in which covering element 7 opens and/or is configured to open the designated pour opening.

[0038] In further detail, covering element 7 may be in a first angular position and a second angular position with respect to hinge axis B when being respectively in the closed position and the open position.

[0039] In even further detail, covering element 7 is movable along an opening direction D1 and a closing direction D2 opposite to opening direction D1 for moving covering element 7 from respectively the closed position to the open position and from the open position to the closed position.

[0040] Preferentially, gripping ring 9 is, in use, gripped by a consumer for moving covering element 7 between the closed position and the open position.

[0041] Preferentially, covering element 7 may be repeatedly moved between the closed position and the open position.

[0042] Advantageously, opening device 3 may also comprise a retaining group 10 configured to retain covering element 7 in the open position (in the second angular position), i.e. retaining group 10 is designed to impede and/or obstacle covering element 7 to (unwantedly) move from the open position to the closed position.

[0043] Moreover, and as it will be disclosed in more detail further below, retaining group 10 may be connected to, in particular is integral to, collar 8.

[0044] In more detail, retaining group 10 may be designed such to exert a retaining force on covering element 7 such that movement of covering element 7 from the open position to the closed position and/or along second direction D2 is obstructed. Furthermore, retaining group 10 may be designed to allow movement of covering element 7 from the open position to the closed position and/or along second direction D2 in the case that a force acts on covering element 7, which is larger than the retaining force.

[0045] With particular reference to Figures 2, 3b and 4b, base frame 6 comprises an opening 13, in particular being designed and/or being aligned with respect to and/or delimiting and/or being designed to delimit the designated pour opening. In particular, covering element 7 is configured to close and/or closes opening 13 (when being positioned in the closed position).

[0046] Preferentially, collar 8 is arranged around opening 13.

[0047] Moreover, base frame 6 comprises a rim 14 delimiting opening 13.

[0048] In more detail, rim 14 comprises a hinge portion 15 to which covering element 7 is hinged. Additionally, hinge portion 15 may define hinge axis B.

[0049] Furthermore, rim 14 may comprise a main portion 16 having a first point 17 and a second point, first point 17 and the second point interposing hinge portion 15 between one another.

[0050] Moreover, main portion 16 extends between first point 17 and the second point.

[0051] Moreover, base frame 6 comprises a first (annular) portion 18 and a second (annular) portion 19 (axially) displaced from one another (with respect to longitudinal axis A) and configured to interpose and/or interposing a portion of main body 2, in particular second wall portion 5, between one another. In particular, the portion of main body 2, in particular of second wall portion 5, that is at the designated pour opening.

[0052] According to some preferred non-limiting embodiments, covering element 7 is in an initial configuration prior to the first-time control of covering element 7 from the closed position to the open position and is in a used configuration after the first-time control of covering element 7 from the closed position to the open position.

[0053] Preferentially, package 1 is delivered to a consumer with opening device 3 being in the initial configuration.

[0054] Preferentially, covering element 7 may be (irreversibly) rupturably connected to base frame 6, in particular rim 14, along a predetermined breaking line.

[0055] Even more preferentially, opening device 3 comprises an irreversibly rupturable (and continuous) coupling membrane 20 (see Figure 4a) for rupturably connecting covering element 7 to base frame 6.

[0056] In particular, coupling membrane 20 is designed to rupture the first-time covering element 7 is moved from the closed position to the open position.

[0057] Preferentially, covering element 7 and coupling membrane 20 are designed to seal and/or seal the designated pour opening (and therewith the inner space) with covering element 7 being in the initial configuration.

[0058] In more detail, coupling membrane 20 is shaped so as to contact main portion 16 of rim 14 with covering element 7 being in the closed position and/or in the initial configuration.

[0059] According to some preferred non-limiting embodiments, covering element 7 comprises an inner surface 21 and an outer surface 22 opposite to inner surface 21. In particular, inner surface 21 faces and/or is designed to face the inner space of main body 2 with covering element 7 being in the closed position.

[0060] Moreover, closing element 7 may comprise a coupling portion 23 hinged to hinge portion 15 and a (main) covering portion 24 integral to coupling portion 23.

[0061] According to the non-limiting embodiment shown, covering element 7 comprises, in particular consists of, a plate and/or is realized in the form of a disk.

[0062] With particular reference to Figures 1 to 5, retaining group 10 comprises an abutment surface 25 and covering element 7 comprises an engagement surface 26, which is designed to abut against abutment surface 25 so as to result in the retaining force for retaining covering element 7 in the open position. In other words, retaining group 10 is designed such that when, in use, covering element 7 abuts against retaining group 10, the abutment results in the generation of the retaining force. In even other words, abutment surface 25 is designed to obstacle and/or impede movement of covering element

7 from the open position to the closed position and/or along closing direction D2.

[0063] In more detail, retaining group 10 is arranged downstream of covering element 7 along closing direction D2 and with covering element 7 being in the open position.

[0064] In even more detail, abutment surface 25 is arranged upstream of engagement surface 26 along closing direction D2 and with covering element 7 being in the closed position.

[0065] Furthermore, inner surface 21 may carry and/or comprise engagement surface 26 (i.e. engagement surface 26 is designed to face the inner space of main body 2) with covering element 7 being arranged in the closed position.

[0066] Preferentially, retaining group 10 may comprise at least two flaps 27 spaced apart from one another.

[0067] In particular, flaps 27 may be spaced apart from one another so as to leave an interspace 28 within which a portion of covering element 7 moves when moving between the closed position and the open position.

[0068] In particular, flaps 27 may be spaced apart from one another along an axis parallel to hinge axis B.

[0069] Furthermore, flaps 27 may be spaced from hinge portion 15 along an axis parallel to longitudinal axis A.

[0070] Preferentially, each flap 27 may comprise an auxiliary portion of abutment surface 25. In particular, the auxiliary portions form together abutment surface 25.

[0071] Additionally, covering element 7, in particular inner surface 21, may comprise at least two portions of engagement surface 26, each one designed to abut against one respective auxiliary portion for determining the retaining force. In particular, the two portions of engagement surface 26 may be arranged at two opposite lateral sides of covering element 7.

[0072] According to some preferred non-limiting embodiments, flaps 27 may be deflectable such that flaps 27 may move together with covering element 7 along closing direction D2, in particular if a consumer forces covering element 7 along closing direction D2 and from the open position towards the closed position. In this manner, it is possible to newly place covering element 7 in the closed position.

[0073] Additionally, flaps 27 may also be deflected along opening direction D1 if the consumer forces covering element 7 along opening direction D1 and from the closed position towards the open position.

[0074] With particular reference to Figures 1 to 5, collar 8 may comprise an outpouring portion 33 designed to receive and guide the pourable product during an outpouring of the pourable product from main body 2 and/or package 1.

[0075] In particular, outpouring portion 33 defines and/or comprises a front section of collar 8. Accordingly, collar 8 is defined such that, in use, the pourable product leaves collar 8 from the front section.

[0076] Preferentially, the outpouring portion 33 com-

prises a pouring lip 34.

[0077] Additionally, collar 8 may comprise a rear section 35 opposite the front section. Preferentially, rear section 35 may carry and/or comprise retaining group 10, in particular flaps 27.

[0078] In more detail, collar 8 may be symmetric with respect to a first plane containing longitudinal axis A and is not symmetric with respect to a second plane containing longitudinal axis A and being perpendicular to the first plane. In particular, the first plane intersects the front portion and/or outpouring portion 33 and/or pouring lip 34.

[0079] Furthermore, the second plane may be interposed between outpouring portion 33 and rear section 35.

[0080] Preferentially, collar 8 comprises a first wall 36 and a second wall 37, each having a respective first end and a respective second end.

[0081] In more detail, the respective first ends of first wall 36 and second wall 37 may be connected to one another and the respective second ends of first wall 36 and second wall 37 may be separated and spaced apart from one another. In particular, the second ends define a main interspace having interspace 28. Thus, at least a portion of covering element 7 may pass, in use, through the main interspace when moving between the closed position and the open position.

[0082] Preferentially, the first ends define together pouring lip 34.

[0083] In particular, first wall 36 and second wall 37 are mirror symmetric with respect to the first plane.

[0084] In even more detail, each second end carries one respective flap 27. Thus, the second ends may be spaced apart from one another along an axis being parallel to hinge axis B.

[0085] Preferentially, first wall 36 and second wall 37 extend away from base frame 6 along longitudinal axis A.

[0086] In further detail, outpouring portion 33 comprises a guide surface 38 designed to guide during an outpouring step of the pourable product, the pourable product towards pouring lip 34.

[0087] In particular, each one of first wall 36 and second wall 37 comprises one respective portion of guide surface 38.

[0088] According to some preferred non-limiting embodiments, outpouring portion 33 may comprise a curved cross-section profile with respect to a first cross-section plane H1 containing longitudinal axis A.

[0089] Preferentially, first cross-section plane H1 may coincide with the first plane.

[0090] According to some preferred non-limiting embodiments, outpouring portion 33 may comprise another cross-section profile being V-shaped with respect to a second cross-section plane H2 being transversal, in particular (substantially) perpendicular, to longitudinal axis A.

[0091] Preferentially, an extension of outpouring portion 33, in particular of the V-shaped cross-section profile, may be such to prevent that the pourable product gets,

in use and during an outpouring of the pourable product, into contact with any external portion of main body 2.

[0092] With particular reference to Figures 1 to 5, gripping ring 9 is (integrally) connected to outer surface 22.

[0093] Moreover, gripping ring 9 is surrounded by collar 8, in particular first wall 36 and second wall 37, with covering element 7 being in the closed position.

[0094] In use, covering element 7 needs to be moved from the closed position to the open position so as to allow for an outpouring of the pourable product.

[0095] During the first-time control of covering element 7 from the closed position to the open position, coupling membrane 20 irreversibly ruptures.

[0096] Afterwards, a consumer can repeatedly move covering element 7 between the open position and the closed position.

[0097] After placement of covering element 7 in the open position, retaining group 10 guarantees that covering element 7 remains in the open position. In other words, retaining group 10 impedes covering element 7 to move in an uncontrolled manner to the closed position.

[0098] In particular, the consumer can move covering element 7 to the closed position by applying a force on covering element 7 superseding the retaining force.

[0099] The advantages of opening device 3 and/or of package 1 according to the present invention will be clear from the foregoing description.

[0100] In particular, no parts of opening device 3 are detached from the other ones when manipulating opening device 3.

[0101] Another advantage resides in that covering element 7 does not move back to the closed position if it is not for a controlled movement by the consumer.

[0102] An even other advantage is seen in that collar 8 is formed such to optimize the outpouring of the pourable product.

[0103] An additional advantage resides in that, by providing for outpouring portion 33 having a curved cross-section profile in the first cross-section plane and/or a V-shaped cross-section profile in the second cross-section plane, collar 8 also comes along with the avoidance of any dripping at the end of an outpouring step.

[0104] Clearly, changes may be made to opening device 3 and/or package 1 as described herein without, however, departing from the scope of protection as defined in the accompanying claims.

Claims

1. Opening device (3) for a package (1) having a main body (2) comprising a designated pour opening and being filled with a pourable product;
the opening device (3) comprises at least:

- a base frame (6) coupling and/or configured to couple the opening device (3) to the main body (2) about the designated pour opening; and

- a covering element (7) hinged to the base frame (6) and angularly movable around a respective hinge axis (B) between a closed position in which the covering element (7) closes and/or is designed to close the designated pour opening and an open position in which the covering element (7) opens and/or is configured to open the designated pour opening;

wherein the opening device (3) further comprises a retaining group (10) configured to retain the covering element (7) in the open position and/or in which the retaining group (10) obstacles an angular movement from the open position to the closed position.

2. Opening device according to claim 1, wherein, in use, the covering element (7) is designed to move along a closing direction (D2) when being moved from the open position to the closed position;
wherein the retaining group (10) is arranged downstream of the covering element (7) along the closing direction (D2) and with the covering element (7) being arranged in the open position.
3. Opening device according to claim 1 or 2, wherein the retaining group (10) comprises an abutment surface (25) and the covering element (7) comprises an engagement surface (26) designed to abut against the abutment surface (25) so as to result in a retaining force for retaining the covering element (7) in the open position.
4. Opening device according to claim 3, wherein the engagement surface (26) is designed to face an inner space of the main body (2) with the covering element (7) being arranged in the closed position.
5. Opening device according to any one of the preceding claims, and further comprising a collar (8) connected to and extending from the base frame (6) and carrying the retaining group (10).
6. Opening device according to claim 5, wherein the retaining group (10) comprises two spaced apart flaps (27);
wherein each flap (27) comprises an auxiliary portion of an abutment surface (25) and the covering element (7) comprises at least two portions of an engagement surface (26), each portion being designed to abut against one respective auxiliary portion for determining a retaining force for retaining the covering element (7) in the open position.
7. Opening device according to claim 5 or 6, wherein the collar (8) comprises an outpouring portion (33) designed to receive and guide the pourable product during an outpouring of the pourable product;
wherein the outpouring portion (33) defines a front

- section of the collar (8);
 wherein the collar (8) also comprises a rear section (35) opposite the front section;
 wherein the rear section (35) carries the retaining group (10).
8. Opening device according to claim 7, wherein the collar (8) extends away from the base frame (6) along a longitudinal axis (A);
 wherein a first cross-section profile of the outpouring portion (33) with respect to a first cross-section plane (H1) containing the longitudinal axis (A) is curved; and/or
 wherein a second cross-section profile of the outpouring portion (33) with respect to a second cross-section plane (H2) being transversal to the longitudinal axis (A) has a V-shape.
9. Opening device according to any one of the preceding claims, wherein prior to a first-time control of the covering element (7) from the closed position to the open position, the covering element (7) is rupturably connected to the base frame (6).
10. Opening device according to any one of the preceding claims, and further comprising a gripping tab (9) connected to the covering element (7).
11. Opening device for a package (1) having a main body (2) comprising a designated pour opening and being filled with a pourable product;
 the opening device (3) comprises at least:
- a base frame (6) coupling and/or configured to couple the opening device (3) to the main body (2) about the designated pour opening;
 - a collar (8) connected to and extending away from the base frame (6) along a longitudinal axis (A);
 - a covering element (7) hinged to the base frame (6) and movable around a respective hinge axis (B) and designed to selectively close and open the designated pour opening;
- wherein the collar (8) comprises an outpouring portion (33) designed to receive and guide the pourable product during an outpouring of the pourable product;
 wherein a first cross-section profile of the outpouring portion (33) with respect to a first cross-section plane containing the longitudinal axis (A) is curved; and/or
 wherein a second cross-section profile of the outpouring portion (33) with respect to a second cross-section plane being transversal to the longitudinal axis (A) has a V-shape.
12. Opening device according to any one of the preceding claims, wherein the opening device (3) is molded
- in a single piece.
13. Package (1) comprising a main body (2) having a designated pour opening and filled with a pourable product and at least one opening device (3) according to any one of the preceding claims arranged around the designated pour opening.
14. Package according to claim 12, wherein the main body (2) is formed from a multilayer composite packaging material.
15. Package according to claim 13 or 14, wherein the opening device (3) is molded in a single piece onto the main body (2) and/or onto a packaging material from which the main body is formed.

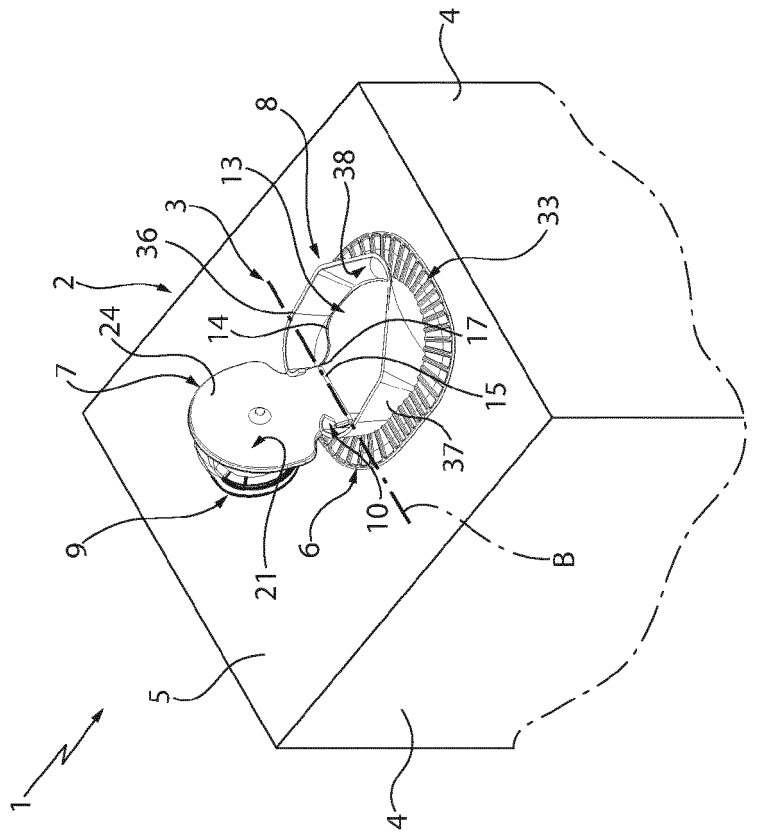


FIG. 1

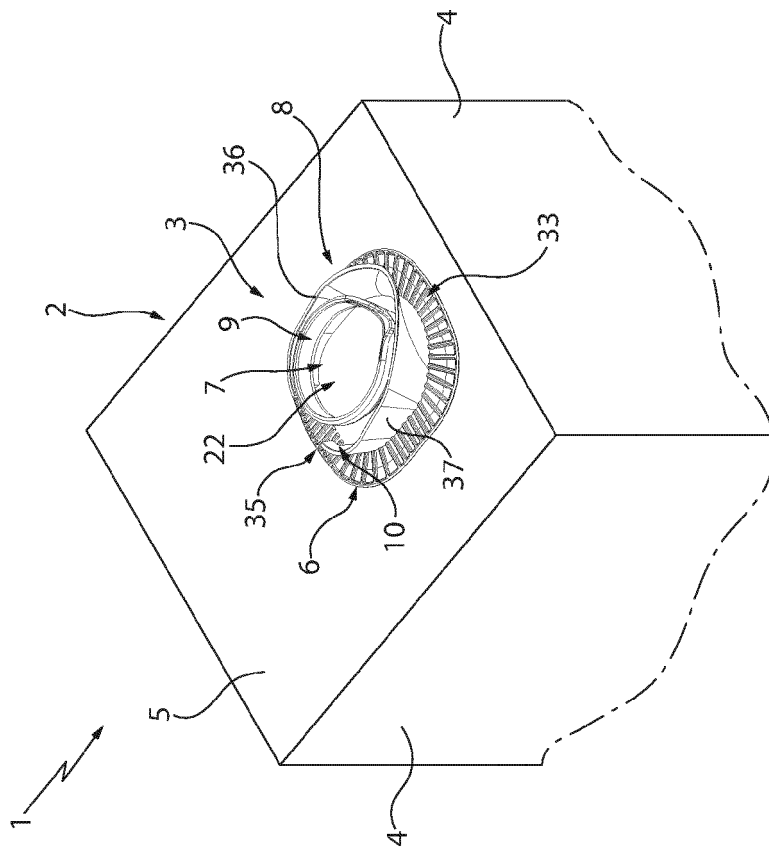
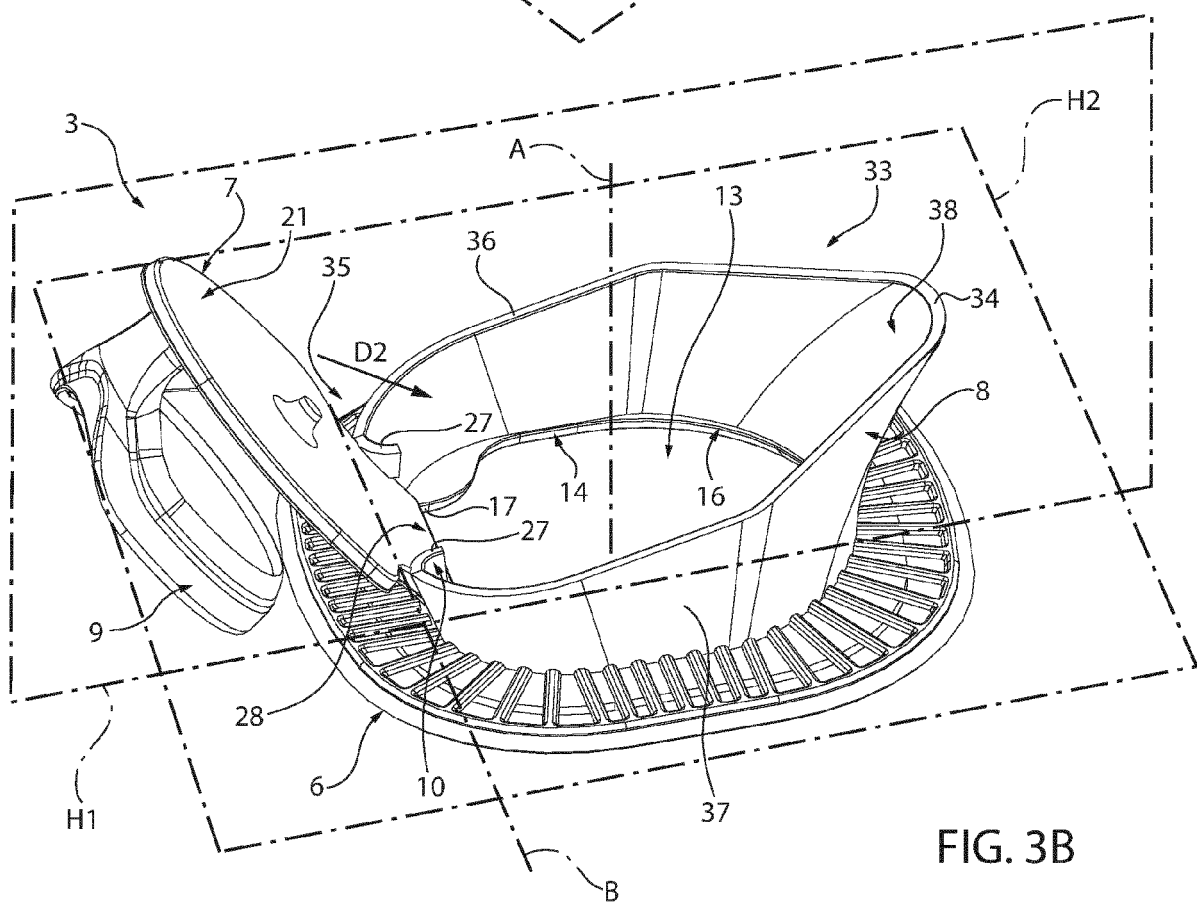
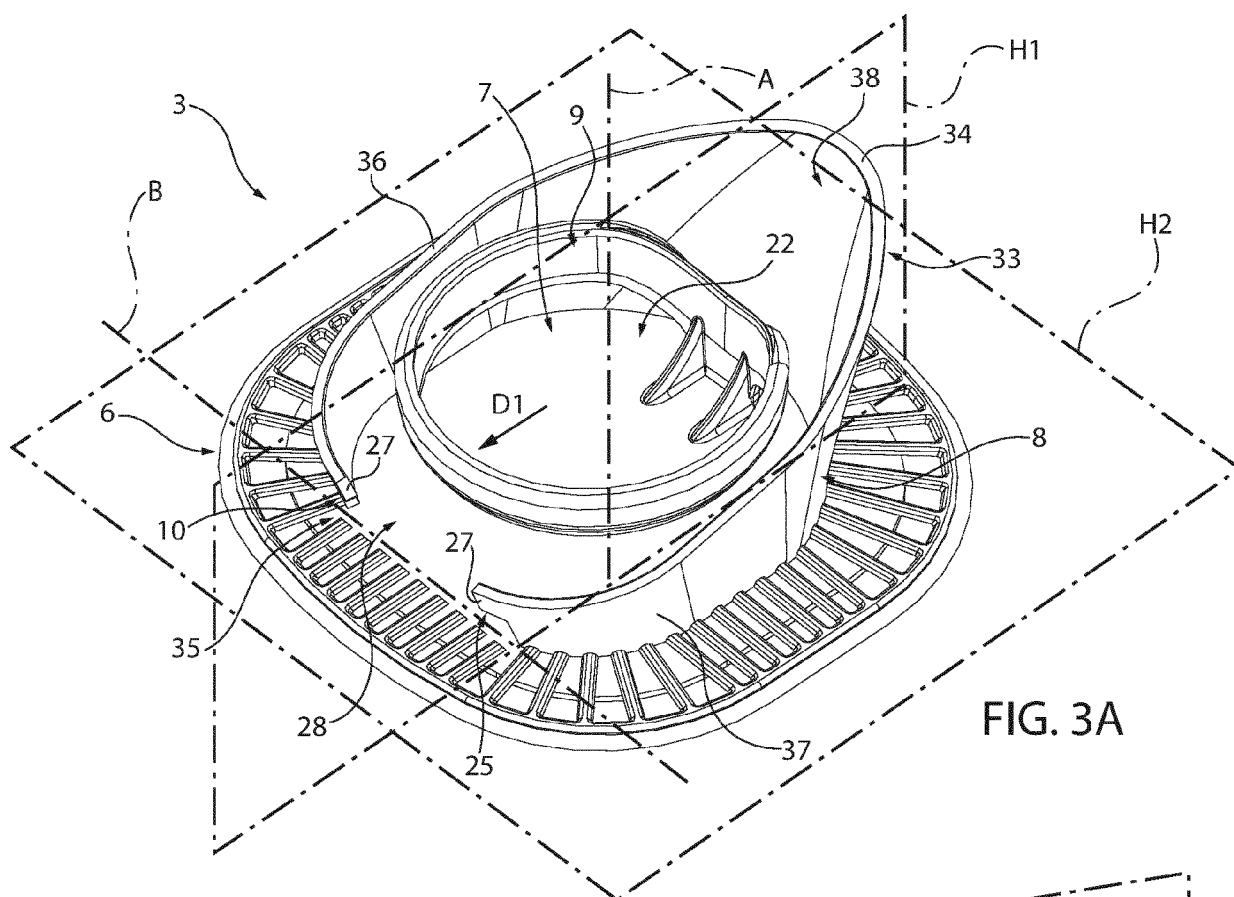


FIG. 2



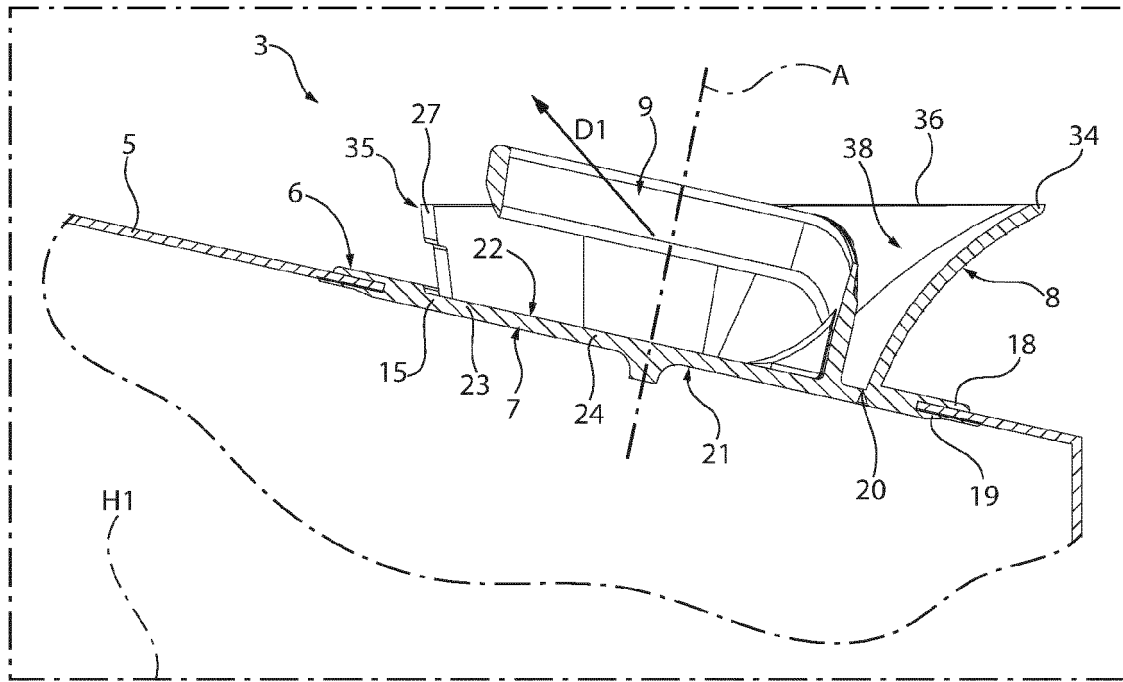


FIG. 4A

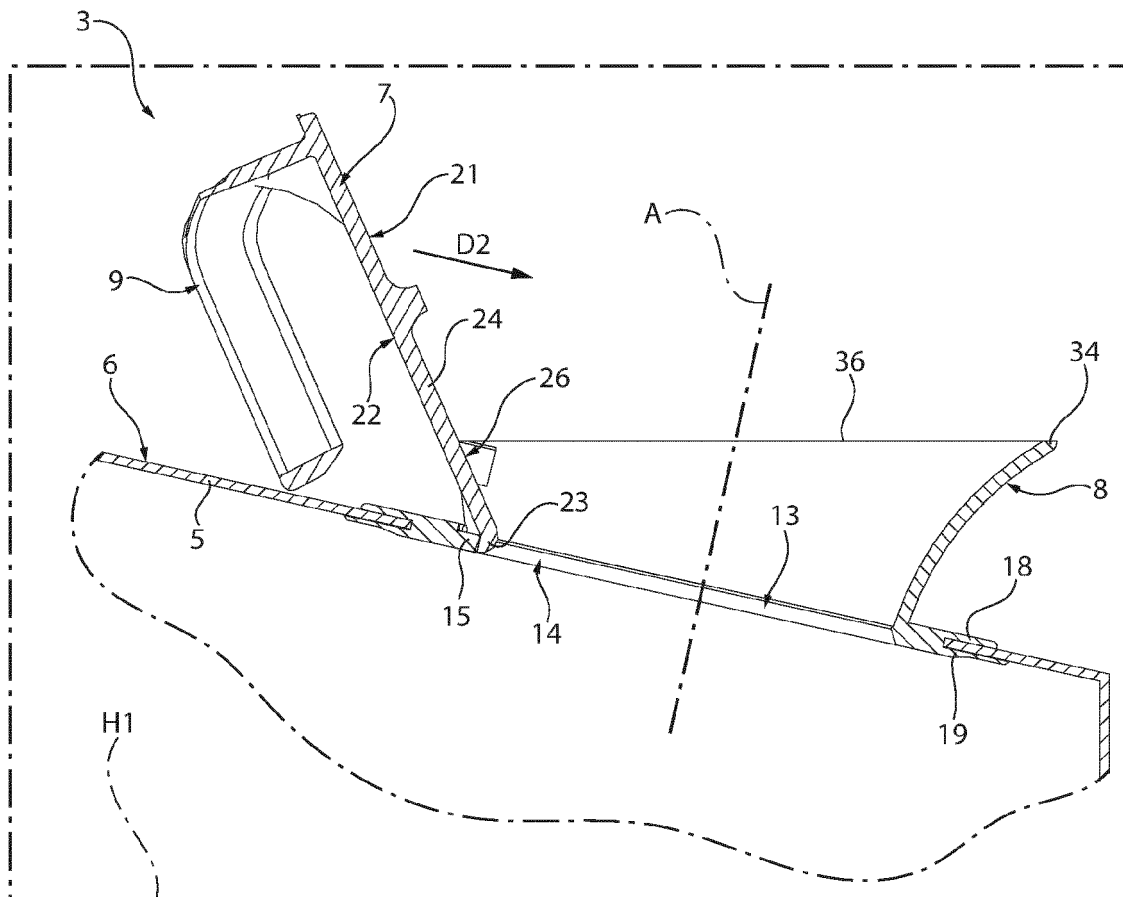


FIG. 4B

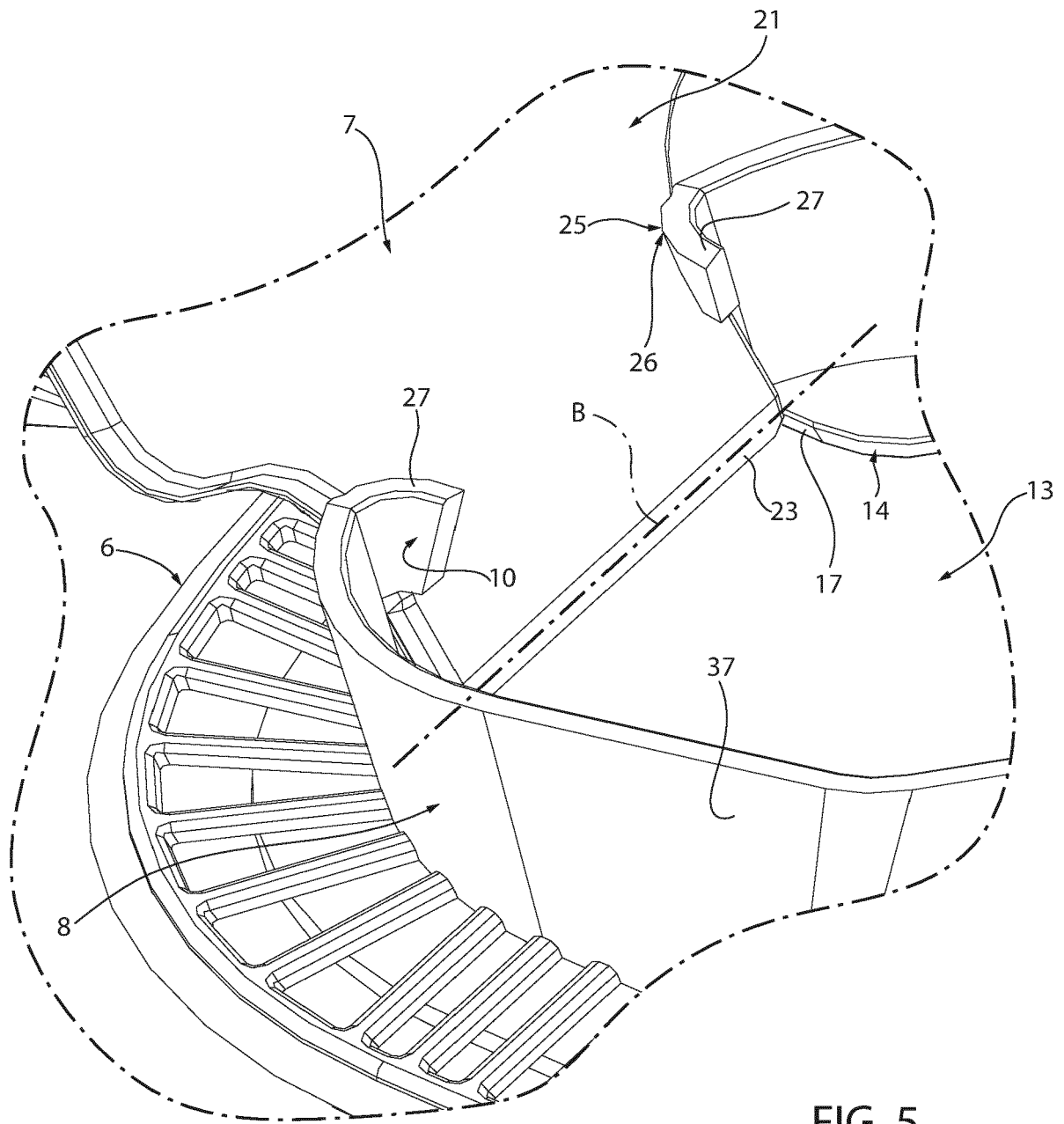


FIG. 5



EUROPEAN SEARCH REPORT

 Application Number
 EP 20 20 7708

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 0 435 279 A2 (TOPPAN PRINTING CO LTD [JP]) 3 July 1991 (1991-07-03) * column 1, line 1 - column 9, line 47 * * figures 5, 6 *	1-10, 13-15	INV. B65D5/74 ADD. B65D47/08
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			B65D
1 The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		30 March 2021	Duc, Emmanuel
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)



Application Number

EP 20 20 7708

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-10(completely); 13-15(partially)

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



LACK OF UNITY OF INVENTION
SHEET B

Application Number

EP 20 20 7708

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-10(completely); 13-15(partially)

Opening device comprising a retaining group configured to retain the covering element in the open position and/or obstacles an angular movement from the open position to the closed position

2. claims: 11, 12(completely); 13-15(partially)

Opening device comprising a collar connected to and extending away from the base frame along a longitudinal axis, wherein the collar comprises an outpouring portion designed to receive and guide the pourable product during an outpouring of the pourable product; wherein a first cross-section profile of the outpouring portion with respect to a first cross-section plane containing the longitudinal axis is curved; and/or wherein a second cross-section profile of the outpouring portion with respect to a second cross-section plane being transversal to the longitudinal axis has a V-shape

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 20 20 7708

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

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