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DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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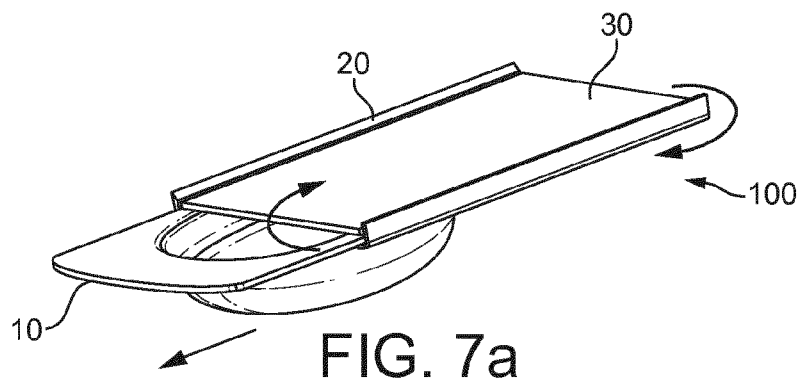
Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
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(54) **Title:** RECLOSABLE PACK



(57) **Abstract:** The invention relates to a pack (100) comprising a container (10) inside of which a food product is arranged, and a closing element (30) covering the container (10); the closing element (30) is arranged folded over a guiding element (20) in such a way as to substantially cover the container (10), the closing element (30) and the container (10) being movable with respect to each other such that the closing element (30) moves over the guiding element (20) opening or closing the container (10) the same distance as the distance that the closing element (30) moves with respect to the container (10). The invention further relates to a machine co-operating with such a pack (100) and to a system comprising a machine and a pack (100).

Reclosable pack

5 Field of the invention

The present invention is directed to a pack comprising a container and a closing element, the pack being reclosable and preferably comprising a food product.

10

Background of the invention

At present, there exist solutions able to provide packs which can be opened
15 and later reclosed comprising different components inside, such as for example a food product. These packs typically comprise a packaging tray where the product is arranged and a lid, typically configured as a thin film, sealed over the tray and closing it. In order to access the components inside, the lid needs to be torn or ripped, typically manually, which makes it not possible to be reclosed afterwards. When the
20 packs are used for food or food products, the lid is originally preferably sealed onto the packaging tray in order to provide a tight pack where the food product is properly stored.

When these packs are used precisely for pet food, the packaging tray is often
25 used as the container where the pet eats. In this case, because food which has not been eaten can be left in the tray component, the tray needs to be reclosed in order to avoid that the food left is spread out of the pack and also in order to avoid undesirable odors when throwing said pack to the bin.

30 Document US 2012/0043323 A1 of the state of the art discloses, for example, a resealable package comprising a tray component where a product is arranged, a cover component and a sealing sheet arranged between the cover and tray components. The sealing sheet comprises a first portion resealably attached to the flange of the tray component and a second portion affixed to the cover component.
35 Because the cover and tray components are movable relative to one another, this movement allows the unsealing and resealing of the sheet over the flange of the tray component. However, the structure disclosed in this document allows that only part of

the tray is made accessible after unsealing of the sealing sheet, as the sheet plies over the cover component, so a full opening of the tray is not possible.

5 However, in this kind of packs, if the resealing adhesive on the flanges of the tray component can deteriorate or become ineffective by dirt, dust or other contaminants, so the tray will not be properly reclosed afterwards. Moreover, this type of packs cannot be possibly integrated into a machine where the opening and reclosing of the pack is intended to be made in a fully automatic way.

10 Accordingly, there is the need to provide a pack that that can be easily opened and reclosed, which is able to be opened fully and such that the opening and reclosing functioning can be made automatically by a machine operating the pack. The present invention is thus oriented towards these needs.

15

Object and summary of the invention

20 According to a first aspect, the invention refers to a pack comprising a container inside of which a food product is arranged, and a closing element covering the container. The closing element is arranged folded over a guiding element in such a way as to substantially cover the container, the closing element and the container being movable with respect to each other such that the closing element moves over the guiding element opening or closing the container the same distance as the
25 distance that the closing element moves with respect to the container.

In a first embodiment, the closing element is arranged folded onto itself. In a second embodiment, the closing element is secured to two fixing areas of the container. Typically, one fixing area is arranged on a lower flange side of the container
30 and another fixing area is arranged on an upper flange side of the container.

Preferably, the container comprises one or a plurality of cavities to store at least one food product. The container can also comprise two cavities joined by a mid-flange, such that the closing element is secured to a fixing area arranged on the upper
35 mid-flange.

According to the invention, the closing element is firstly tightly sealed over flanges of the container: typically, the seal is either a seal-peel type or a seal-peel resealable type.

5 Preferably, the closing element is configured as a flexible film.

According to one embodiment, the guiding element is configured as part of the pack and is typically configured as a plate, as a rod, as a shaft or similar.

10 Typically, the pack further comprises identification means comprising information on the food product in the container and/or information on the use and/or processing of the pack.

According to a second aspect, the invention refers to a machine configured in
15 such a way to cooperate with a pack as the one previously described, the machine comprising suitable means to open the pack by moving the closing element and the container with respect to each other, the machine also comprising cooperating means to reclose the pack by moving back the closing element and the container with respect to each other.

20 According to a possible embodiment, the machine further comprises the guiding element over which the closing element can be arranged.

According to yet a third aspect, the invention refers to a system comprising a
25 machine and a pack as the ones described before.

Brief description of the drawings

30

Further features, advantages and objects of the present invention will become apparent for a skilled person when reading the following detailed description of embodiments of the present invention, when taken in conjunction with the figures of the enclosed drawings.

35

Fig. 1 shows a schematic view of a container in a reclosable pack arrangement according to the present invention.

Fig. 2 shows a schematic view of a guiding element in a reclosable pack arrangement according to the present invention.

Fig. 3 shows a schematic view of a closing element in a reclosable pack arrangement according to the present invention.

Fig. 4 shows a schematic view of a reclosable pack according to the present invention, being in a reclosed state.

Fig. 5 shows a schematic view of a reclosable pack according to the present invention, closed as it is originally provided.

Figs. 6a-b-c show different views of the arrangement of the closing element with respect to the guiding element and the container in a reclosable pack according to the present invention.

Figs. 7a-b show different views of the opening of a reclosable pack according to the present invention, by sliding the closing element with respect to the container.

Figs. 8a-b show further details of the arrangement of the closing element and the container in a reclosable pack according to the present invention.

Figs. 9a-b show different views of the reclosable pack of the present invention, when it has been completely opened.

Fig. 10 shows a schematic view of the reclosable pack according to the invention, when it is being reclosed.

Fig. 11 shows a schematic view of the reclosable pack of the invention, according to another embodiment.

Fig. 12 shows a schematic view of the reclosable pack of the invention, according to still another embodiment.

Detailed description of exemplary embodiments

The present invention relates to a pack 100 preferably comprising a food
5 component inside, more preferably a pet food component. The pack 100 of the
invention comprises a container 10, comprising a cavity 11 where the food component
is arranged, and a closing element 30 closing the container 10. The closing element
30 is movable with respect to the container 10, preferably sliding over it, by means of
a guiding element 20, such that the pack 100 can be opened and reclosed a plurality
10 of times.

Originally, the closing element 30 closes in a tight manner the container 10,
preferably by sealing over the flanges 12 of the container 10. This allows that the food
content inside the cavity 11 is maintained in good hygienic condition and keeping its
15 entire flavor during time. Once opened, the configuration of the pack 100 allows it to
be reclosed, as it will be further explained in more detail.

Preferably, the container 10 in the pack 100 of the invention comprises one
single cavity 11, as depicted in Figures 9a and 9b, for example. However, according
20 to another embodiment, the container 10 can be configured comprising a plurality of
cavities 11, as represented in Figure 12: this configuration is useful when different
types of food components are arranged in the pack, so they can be better stored and
maintained with time as they are separated from each other.

Preferably, according to the invention, the closing element 30 is sealed over
25 the flanges 12 of the container 10, in the so called seal-peel way, meaning that the
closing element 30 cannot be resealed again over the flanges 12. According to the
preferred use of the pack 100 of the invention, it is important that the closing of the
pack 100 is made in a tight way originally, to correctly preserve the food inside.
30 However, after the food has been completely or partially eaten, the remaining food is
not intended for further storage or consumption but it is rather trashed: therefore, the
important features to keep at this stage are to make a reclosing of the pack such that
no remaining food is spread and undesirable odors are avoided. According to the
invention, the reclosing of the closing element 30 over the container 10 is not done in
35 a tight manner: however, according to a different embodiment, it is also possible that
the flanges 12 can comprise a resealing adhesive instead to reclose in a tight manner
the pack 100.

The main components of the pack 100 according to the invention are shown in Figures 1-2-3, where Figure 2 simply shows one possible execution of a guiding element 2: other simpler configurations are possible and comprised within the scope of the present invention, such as a roller or any other element acting as a guide for the sliding of the closing element 30 with respect to the container 10.

The closing element 30 is preferably made of a flexible material, typically configured as a flexible film, which is able to slide over the guiding element 20, relative to the container 10. Preferably, the closing element 30 is configured as a flexible film having a thickness such that it can slide and be folded and/or rolled: typically, this thickness is less than 500 microns, preferably less than 200 microns, and more preferably less than 150 microns. The guiding element 20 is preferably configured as a frame, hosting the closing element and guiding its movement with respect to the container 10. Typically, the closing element 30 together with the guiding element 20 slide with respect to the container 10, which is maintained fixed. However, it is also possible that the closing element 30 together with the guiding element 20 are fixed, and that it is the container 10 which moves. Another possibility is that both elements (container and closing element together with guiding element) move. In fact, what is needed is that these two elements have a relative movement with respect to each other, typically a sliding movement.

This closing element 30 can also be made of aluminum, for example, configured as a flexible film, preferably advantageous when the food content is going to be heated, for example.

Typically, according to the invention, the pack 100 further comprises identification means (not shown) configured as a code, bar code, or the like, comprising information on the food product in the container 10 and/or information on the use and/or processing of the pack 100. For example, this information can comprise the opening and/or reclosing velocity of the pack, the dosing of the pack, the kind of food comprised in it, the time the pack is going to be left open, if heating of the food inside is preferred or not, etc. These identification means can be arranged in the container 10, for example in the flanges 12 so they are read once or while the pack is opened, or can be arranged in the closing element 30, or in any other possible arrangement in the container 10: in any case, the machine operating these packs will comprise suitable reading means to read the information in the pack 100.

According to a possible embodiment, as described previously, the closing element 30 is folded, typically over the guiding element 20, and then it is fixed or secured in two areas 101, 102 located in the container 10. Another embodiment of the pack of the invention is to have the closing element 30 folded over itself to configure a closed element itself (not shown in the attached Figures, though) through which the guiding element 20 can pass and make it possible to slide the closing element 30 with respect to the container 10.

According to the invention, the guiding element 20 can be for example part of the pack itself, though it can also be comprised in a machine configured to cooperate with the pack 100.

Also preferably, according to the invention, the closing element 30 has a length $2L$ which is double the length L of the container 10: thus, when configured as a thin layer, this layer is arranged over the guiding element 20, also having a length L , covering its two sides. When the closing element 30 slides with respect to the container 10 a distance L , the container 10 is fully opened for consumption as shown for example in Figures 9a and 9b.

By sliding back once again the closing element 30 with respect to the container 10, the pack 100 is reclosed, as shown for example in Figure 10. Besides, Figure 4 also shows the pack 100 once it has been completely reclosed.

According to the invention, a machine will actuate the pack 100 in an automatic way, first opening the container 10 completely and later reclosing it for it to be trashed. The machine will be therefore configured to cooperate with the pack in order to actuate either the closing element 30, or the container 10 or both, typically displacing one or both with respect to each other, as previously described.

As shown in Figures 5 and 6a-b-c, the closing element 30 is typically sealed (seal-peel way) over the flanges 12 of the container 10 firstly, when the pack has not been opened yet. Furthermore, according to one embodiment of the invention, the closing element 30 is fixed by a strong seal on two of its sides, in what is called two fixing areas or zones, marked as 101 and 102 in Figure 6c: Figure 6c shows these strong seals 101 and 102 arranged on the container 10, preferably one arranged on

an upper flange of the container and another one arranged on a lower flange of the container.

According to another embodiment of the invention, it is also possible that the
5 pack 100 is configured as shown in Figure 11, for example: in this case, the container
10 comprises two separate cavities, 11 and 11', joined through a mid-flange 110,
these cavities comprising either the same food component or different ones.

According to another aspect, the invention refers to a machine configured in
10 such a way to cooperate with a pack 100 as the one described, the machine
comprising suitable means to open the pack 100 by moving the closing element 30
and the container 10 with respect to each other, typically sliding one with respect to
the other, the machine also comprising cooperating means to reclose the pack 100 by
moving back (typically, sliding back) the closing element 30 and the container 10 with
15 respect to each other. As already described, it is also possible that the machine itself
comprises the guiding element 20 over which the closing element (30) can be
arranged.

According to still another aspect, the invention refers to a system comprising a
20 machine as the one described and a pack 100 as previously described.

Although the present invention has been described with reference to preferred
embodiments thereof, many modifications and alternations may be made by a person
25 having ordinary skill in the art without departing from the scope of this invention which
is defined by the appended claims.

Claims

1. Pack (100) comprising:
 - 5 - a container (10) inside of which a food product is arranged, and
 - a closing element (30) covering the container (10);the closing element (30) is arranged folded over a guiding element (20) in such a way as to substantially cover the container (10), the closing element (30) and the container (10) being movable with respect to each other such that the
10 closing element (30) moves over the guiding element (20) opening or closing the container (10) the same distance as the distance that the closing element (30) moves with respect to the container (10).
2. Pack (100) according to claim 1 wherein the closing element (30) is arranged
15 folded onto itself.
3. Pack (100) according to claim 1 wherein the closing element (30) is secured to two fixing areas of the container (10).
- 20 4. Pack (100) according to claim 3 wherein one fixing area is arranged on a lower flange side of the container and another fixing area is arranged on an upper flange side of the container (10).
- 25 5. Pack (100) according to any of the previous claims, wherein the container (10) comprises one (11) or a plurality of cavities to store at least one food product.
6. Pack (100) according to any of the previous claims wherein the container (10) comprises two cavities (11, 11') joined by a mid-flange (110).
- 30 7. Pack (100) according to any of the previous claims wherein the closing element (30) is firstly tightly sealed over flanges (12) of the container (10).
8. Pack (100) according to claim 7 wherein the seal is either a seal-peel type or a seal-peel resealable type.
- 35 9. Pack (100) according to any of the previous claims wherein the closing element (30) is configured as a flexible film.

10. Pack (100) according to any of the previous claims wherein the guiding element (20) is part of the pack (100).
- 5 11. Pack (100) according to any of the previous claims wherein the guiding element (20) is configured as a plate, as a rod, as a shaft or similar.
- 10 12. Pack (100) according to any of the previous claims further comprising identification means comprising information on the food product in the container (10) and/or information on the use and/or processing of the pack (100).
- 15 13. Machine configured in such a way to cooperate with a pack (100) according to any of claims 1-12, the machine comprising suitable means to open the pack (100) by moving the closing element (30) and the container (10) with respect to each other, the machine also comprising cooperating means to reclose the pack (100) by moving back the closing element (30) and the container (10) with respect to each other.
- 20 14. Machine according to claim 13 further comprising the guiding element (20) over which the closing element (30) can be arranged.
15. System comprising a machine according to any of claims 13-14 and a pack (100) according to any of claims 1-12.

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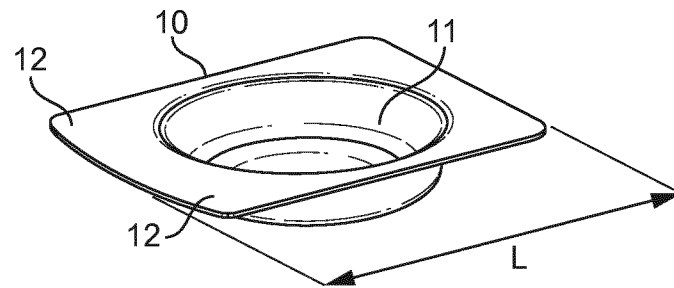


FIG. 1

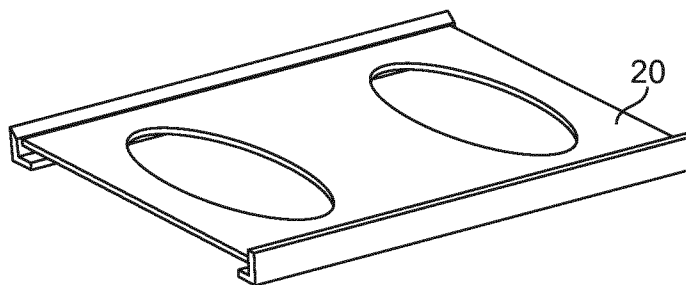


FIG. 2

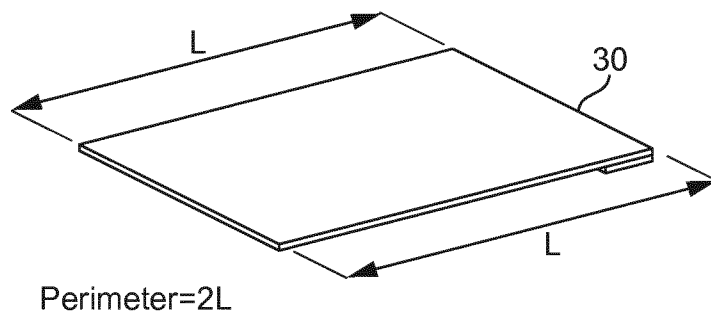


FIG. 3

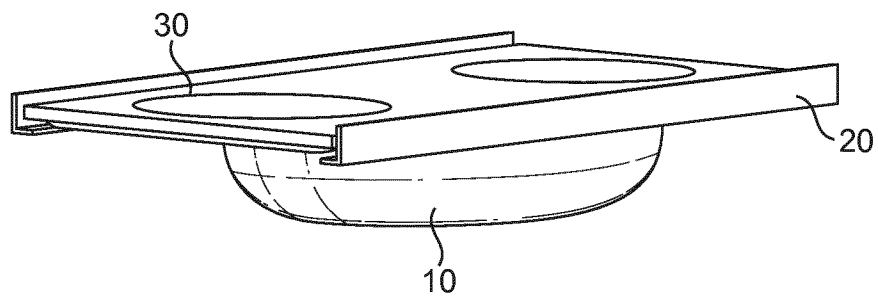


FIG. 4

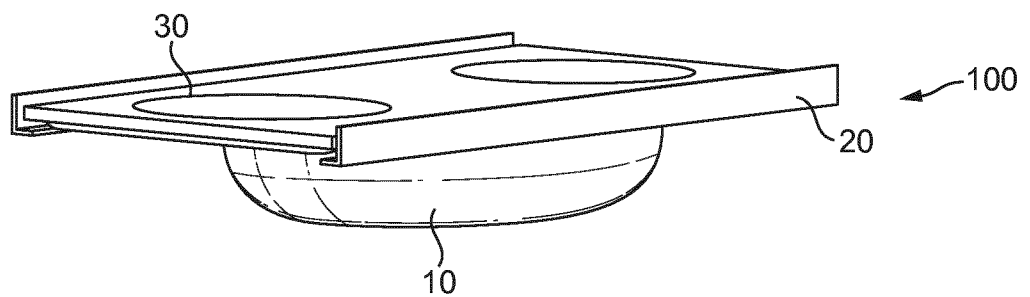


FIG. 5

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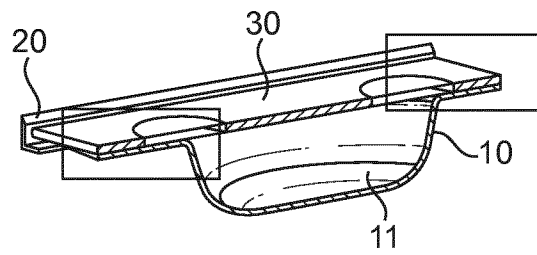


FIG. 6a

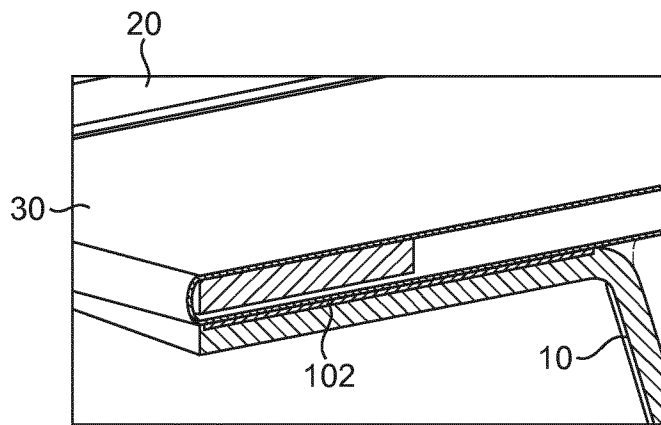


FIG. 6b

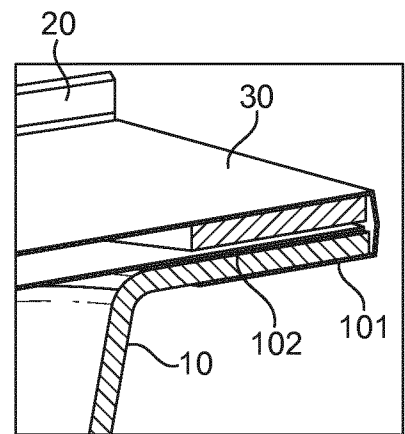


FIG. 6c

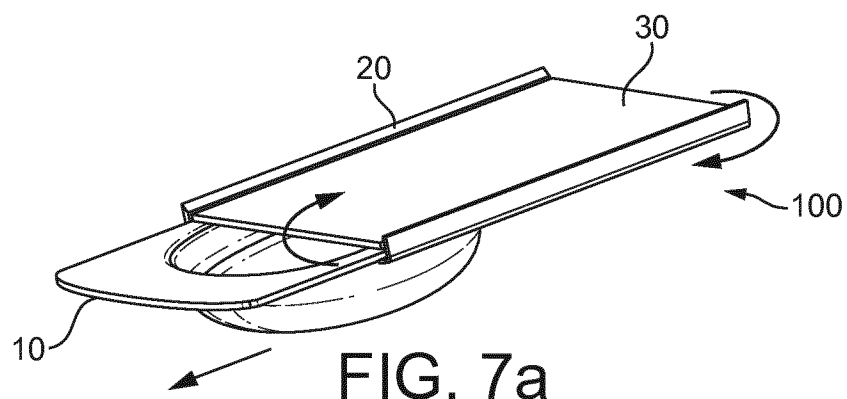


FIG. 7a

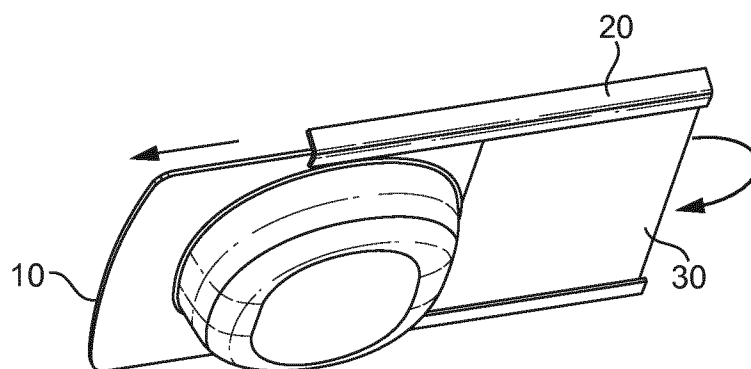


FIG. 7b

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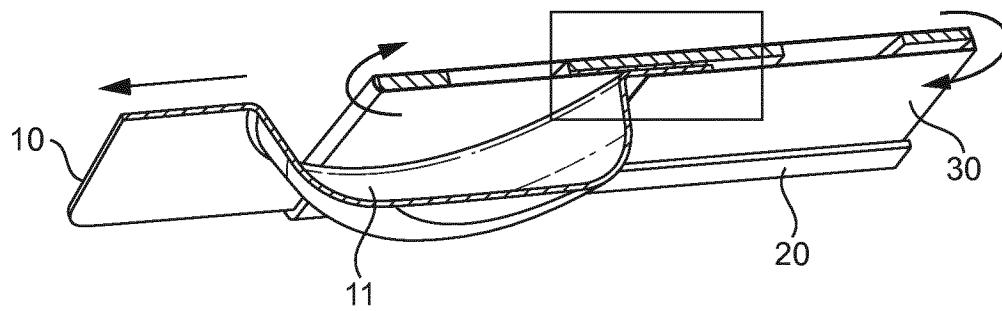


FIG. 8a

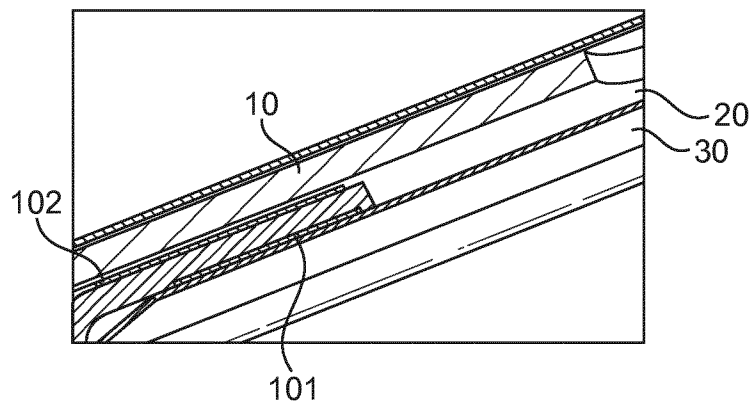


FIG. 8b

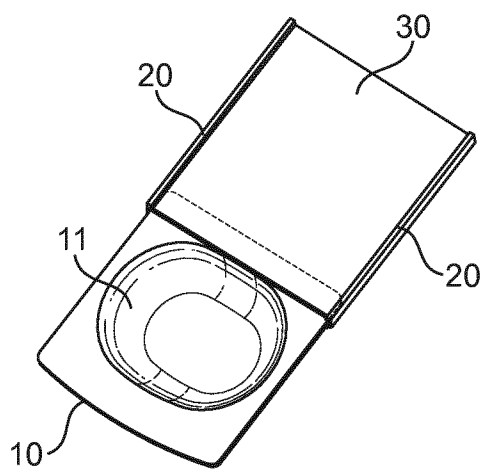


FIG. 9a

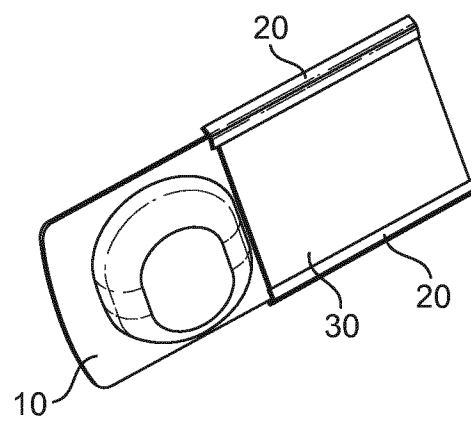


FIG. 9b

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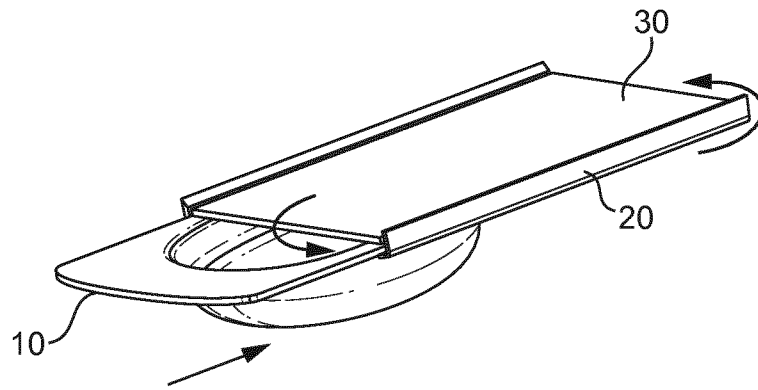


FIG. 10

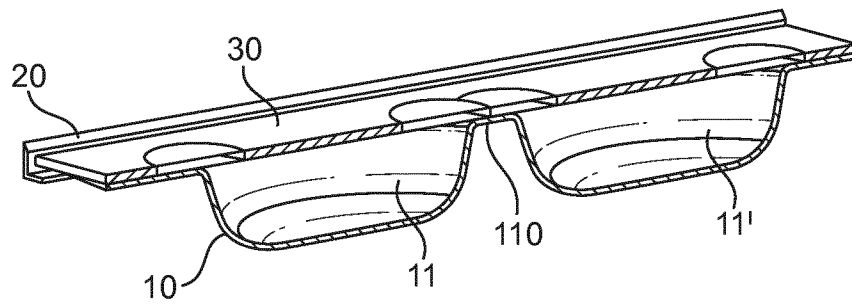


FIG. 11

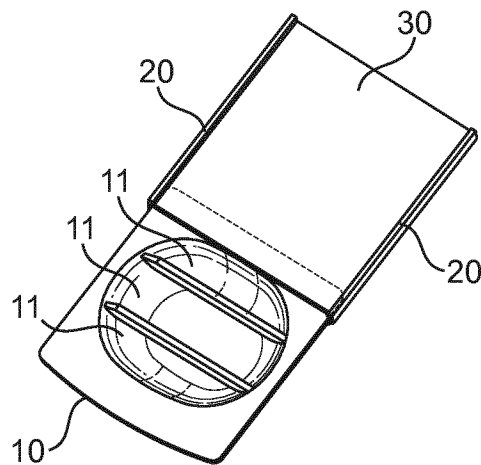


FIG. 12

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2016/058262

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D43/12 B65D43/20
ADD.

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)
B65D

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

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

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 190 191 A (FORBES HAMPTON E JR [US]) 26 February 1980 (1980-02-26) column 1, line 66 - column 2, line 3 column 2, line 51 - column 4, line 15; figures -----	1-5,7, 10-15
X	FR 1 185 157 A (BLOMET) 30 July 1959 (1959-07-30) page 2; figures -----	1-7, 10-12
X	DE 20 2005 007910 U1 (BERNDT & PARTNER GMBH [DE]) 11 August 2005 (2005-08-11) paragraphs [0029] - [0031]; figures -----	1-5,10, 11
X	NL 1 008 705 C2 (ALUSUISSE LONZA SERVICES AG [CH]) 28 September 1999 (1999-09-28) pages 3-4; figures ----- -/-	1-5,7, 10,11



Further documents are listed in the continuation of Box C.



See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

4 July 2016

Date of mailing of the international search report

12/07/2016

Name and mailing address of the ISA/

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Authorized officer

Fournier, Jacques

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2016/058262

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2012/037534 A1 (OMAGE JAMES [US] ET AL) 16 February 2012 (2012-02-16) paragraph [0029] - paragraph [0032]; figures 1-4,6,7 -----	7-9
A	US 3 876 133 A (SMITH ERNEST L) 8 April 1975 (1975-04-08) column 2, line 28 - column 3, line 35; figures -----	8,9

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2016/058262

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4190191	A	26-02-1980	NONE	
FR 1185157	A	30-07-1959	NONE	
DE 202005007910 U1		11-08-2005	DE 202005007910 U1	11-08-2005
			EP 1721834 A1	15-11-2006
NL 1008705	C2	28-09-1999	NONE	
US 2012037534	A1	16-02-2012	NONE	
US 3876133	A	08-04-1975	NONE	