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(54) Title: DISPENSING SYSTEM

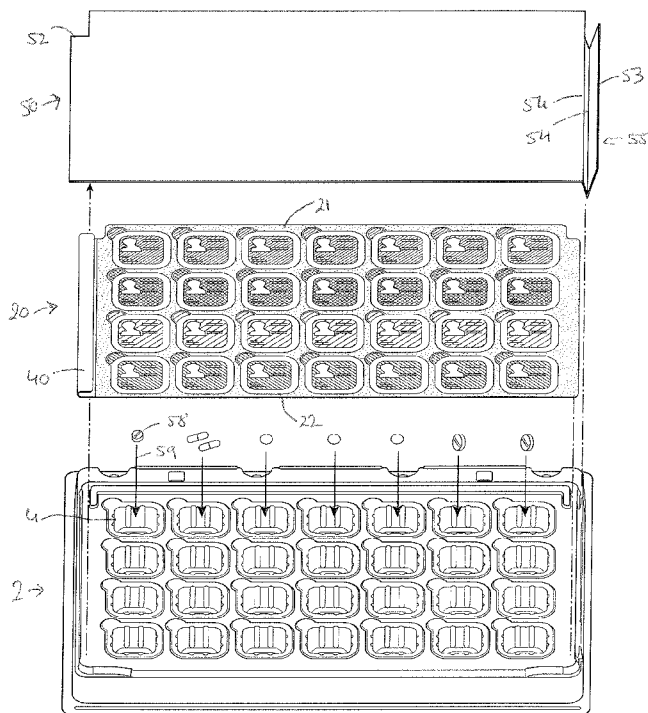


Figure 5

(57) Abstract: A tray closure assembly (1) having an inter-connected array (3) of compartments (4), a closure (20) in the form of a flexible sheet for the compartments being arranged so that the closure and the compartments form a series of sealed containers, and optionally so that each sealed container is frangible from the interconnected array so that a sealed container may be removed from the array, an openable flap (50) for overlying the closure, the flap being attached to the tray by attachment to the closure. The sealing closure offers two functions, one to form the seals for the compartments and secondly to hold a protective flap to the tray.



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Title

Dispensing System

Field of the Invention

[0001] The present invention relates to trays and closures for trays. Of interest is the field of dispensing systems for example for medicament regimes for patients. In particular, the present invention relates to a medicament tray which is compartmentalised for the purposes of a medicament dosage regime.

Background to the Invention

[0002] The present invention relates to a simple yet highly innovative improvement in trays and closures for trays in particular those used in the field of dispensing systems for example for medicament regimes for patients.

[0003] Often times medicine dispensing systems include a tray and some form of protective cover, for example a cassette into which the tray is placed. International Patent Publication No. WO 2010/136469 (Application No. PCT/EP2010/057187) the entire contents of which are hereby incorporated by reference, shows in Figures 2-5 (and also later Figures) a tray within a cassette, while an alternative where the tray has an integral openable flap is shown in Figure 17. While such arrangements are desirable the present invention seeks to simplify the construction of such devices.

[0004] International Patent Publication WO 2005/102862 describes a package unit for a weekly medicament requirement of a patient. The package comprises a blister pack unit. It has flaps which are integrally formed with the tray. International Patent Publication WO 2005/023672 describes a blister pack arrangement. US Patent No. 6,669,236 describes a multipart label for providing information on blister packs. US Patent No. 6,681,935 describes a medicament package which includes a blister pack with a top cover.

[0005] The present invention is primarily concerned with the provision of a system that is suitable for use in patient dosage regimes. For example the type of system that acts as an organiser for medication to be taken over the course of a week, and at various times per day for example four times per day.

Summary of the Invention

[0006] In one aspect, the present invention provides a tray closure assembly comprising:

- (a) a tray comprising an interconnected array of compartments;
- (b) a closure for the compartments being arranged so that the closure and the compartments form a series of sealed containers (and optionally arranged so that

each sealed container is frangible from the interconnected array so that a sealed container may be removed from the array);and

(c) an openable flap for overlying the closure, the flap being attached to the tray by attachment to the closure.

[0007] The present invention is suitable for use in a medical dosage regime. For example each sealed container may hold medication to be taken on a given day/at a given time. The medication may be in any suitable form including liquid and solid form. The sealed compartments formed by placing the closure on the tray are individually openable so that their respective contents can be independently accessed.

[0008] The invention provides a simple inexpensive construction that is robust and functional and which obviates the necessity for additional manufacturing steps during manufacture of the tray. Desirably the closure is in the form of a flexible sheet.

[0009] The invention also relates to a kit of parts for forming an assembly of the invention and comprising a tray, a closure and a flap which together can form an assembly of the invention.

[0010] The closure suitably comprises an adhesive sheet and the flap may be attached to the closure by adhesion to said adhesive sheet. This is a very simple construction and is using the closure for two functions at the same time.

[0011] Desirably the closure comprises a flexible tab to which the flap may be secured, the flexible tab acting as a hinge to allow relative movement of the flap to the closure between a closed position overlying the closure and an open position where it does not overlie the closure. Again a simple arrangement that is highly robust and easy to assemble.

[0012] The flexible tab may extend around and attach to opposing sides of the flap for extra security in fixing the flap in place. In one simple arrangement the flexible tab extends around and adheres to opposing sides of the flap.

[0013] Desirably the trays are stackable. For example when the trays stack a peripheral skirt of a first tray sits on top of a peripheral skirt of a second (lower) tray. Desirably in a stacked arrangement the compartments of one tray are suspended in (and thus out of contact with) the compartments of a lower tray in a stack. Suspension can be achieved by way of the peripheral skirt engagement.

[0014] The closure may be designed so that the flexible tab thereon (and integrally formed therewith) extends beyond one side of the tray in at least an open position of the flap.

[0015] The invention also relates to a closure for a tray closure assembly where the tray closure assembly comprises

- (a) a tray comprising an interconnected array of compartments;
- (b) a closure for the compartments;

(c) an openable flap for overlying the closure, the closure being adapted so that it, together with the compartments form a series of sealed containers (optionally wherein each sealed container is frangible from the interconnected array so that a sealed container may be removed from the array) and the closure being adapted to attach the flap to the tray.

[0016] The closure may be formed as an adhesive sheet. A suitable removable backing may be provided.

[0017] It will be appreciated that all aspects of the invention may be combined in any suitable manner even though they are separately inventive.

[0018] Desirably the closure has a plurality of discreet print-receiving areas for example for printing patient information.

[0019] A tray closure assembly or kit for forming such an assembly can have any type of closure according to the invention.

[0020] Desirably the closure has a rim about a mouth thereof, a tab (for example a tab corresponding to a peel-off tab of a lid) on the rim and desirably the closure provides individual lids for the closures wherein the lid has a tab overlying portion corresponding to the tab, a rim overlying portion which corresponds to the rim and a mouth overlying portion which corresponds to the mouth.

[0021] Even though some or all of the sealed containers formed by the lids/compartments are removed, the closure will continue to hold the flap to the tray.

[0022] The sealing closure offers two functions, one to form the seals for the compartments and secondly to hold a protective flap to the tray.

Brief Description of the Drawings

[0023] Different scales have been used in different Figures to more clearly show aspects of the invention. Embodiments of the invention will be described, by way of example only, with reference to the accompanying drawings in which:

[0024] **Figure 1** is a top view of a tray forming part of a tray closure assembly of the present invention;

[0025] **Figure 2** is a top view of a closure of the present invention in the form of a flexible sheet;

[0026] **Figure 3** is a top view of an assembly wherein the closure of Figure 2 has been applied to the tray of Figure 1;

[0027] **Figure 4** is a top view of a flap forming part of a tray closure assembly of the present invention;

[0028] **Figure 5** shows an exploded perspective view of a tray closure assembly of the present invention and comprising the tray of **Figure 1**; the closure of **Figure 2**; and the flap of **Figure 4** and additionally showing medication being placed in the container;

[0029] **Figure 6** shows a partial top view of the assembled assembly of **Figure 5** with the flap in an open position where it does not overlie the closure;

[0030] **Figure 7** shows the assembled assembly of **Figure 5** with the flap in a closed position and overlying the closure;

[0031] **Figure 8** is a partial sectional view along the line A-A of **Figure 7**;

[0032] **Figure 9** is a partial sectional view along the line B-B of **Figure 7**

[0033] **Figure 10** is a sectional view of two adjacent sealed containers forming part of the assembly of the invention;

[0034] **Figure 11** is a sectional view of a sealed container which has been removed from the assembly/array and holding liquid;

[0035] **Figure 12** is a sectional view of a sealed container which has been removed from the assembly/array and holding solid medication, in this case capsules;

[0036] **Figure 13** is a top perspective view of a sealed container which has been removed from the assembly/array and in the process of having its lid (seal) removed by lifting of a tab; and

[0037] **Figure 14** is a top perspective view of a sealed container which has been removed from the assembly/array and with the lid/seal partially pulled away.

Detailed Description of the Drawings

[0038] It is readily apparent to one of ordinary skill in the art that the examples/embodiments disclosed herein represent generalised examples/embodiments only, and that other arrangements are possible and are embraced by the present invention.

[0039] In the Figures the tray closure assembly will be designated by reference 1. The assembly 1 (c.f. **Figures 6-9**) comprises a tray 2 which is shown in **Figure 1**. The tray 2 comprises an interconnected array 3 of compartments 4 (in the embodiment its shown as a 7 x 4 array to allow for a dosage regime for each day of the week and up to four times a day dosage). Each compartment may be dimensioned to accommodate therein a plurality of medicaments.

[0040] A frame 5 forms a backbone structure for the entire array. Each compartment 4 is removably attached to the tray 2 and in particular the frame 5 by a frangible connection 6. The frangible connection 6 may be formed in any suitable way, for example by a series of perforations. In this way each compartment 4 can be removed from the tray 2 when desired. When it is removed, it leaves an aperture in the frame 5. This means that each compartment 4 is not directly connected to the next. This allows for ease of removal of any selected one of

the compartments 4. It will be appreciated however that the tray closure assembly of the invention can be utilised where the compartments 4 are not frangible. For example where a compartment is a permanent part of the tray and is not designed to be frangible from the tray.

[0041] A peripheral skirt or sidewall 10 runs about the periphery of the tray 2 to provide a stand to hold the compartments 4 in a raised position relative to a supporting surface on which the tray may be supported. A peripheral rim 14 extends about (and projects beyond) the lower end of the peripheral skirt 10 (best seen in **Figures 8 and 9**).

[0042] About the top of the compartment 4 is a peripheral rim or lip 7 to define a mouth 11 thereof. A tab 8 is integrally formed with the lip 7.

[0043] Sidewalls 9 of the compartments 4 are provided with reinforcing ribs 12, which may be formed as depressions in the side walls. The compartments for each also have a base 13.

[0044] Apertures 15 that may be provided if desired, for example to allow the tray 2 to be held by the rings of a ring binder.

[0045] A raised border 16 is desirably provided to form a guide for application of the seal 20 (which will be described in detail below). In particular, it is desirable that the border 16 and the seal 20 have complimentary shapes so that together their complimentary shapes position the seal correctly. This can be achieved by alignment along two perpendicular axes in the same plane (for example left to right and top to bottom, in the orientation of Figure 1). So the border 16 has a linear portion 17 which defines the position along one axis, and two end portions 18 angled relative to the linear portion 17, which define the position along a second perpendicular axis.

[0046] The trays 2 are stackable. Desirably when the trays stack the peripheral skirt 10 nests on top of a peripheral skirt 10 of a lower tray 2. However, it is desirable that in a stack neighbouring trays 2 do not nest to the extent that a compartment 4 nests into and abuts a lower compartment 4 as such nesting may make it difficult to later separate the trays one from another, or possibly even causes one or more compartments to be broken away when a tray 2 is being removed from a stack. The breaking can occur either in a lower tray or upper tray as they are separated. Thus it is desirable that the trays 2 are arranged so that the peripheral skirt 10 does not allow compartments 4 from neighbouring trays in a stack to engage against each other. From a space saving perspective it is desirable that the base of a first compartment can extend somewhat through the mouth of a lower container in the stack but without actually having the two compartments come into direct abutment with each other. This is easily achievable because the base of a compartment is smaller than the mouth of a compartment. So the compartments of one tray are suspended in (and thus out of contact with) the compartments of a lower tray in a stack.

[0047] The tray 2 can be constructed in one manufacturing step which forms the tray from a suitable material such as a suitable plastics material. For example the tray 2 may be moulded from a planar plastics material. Desirably the tray is sufficiently transparent to allow printed material to be read through a wall thereof.

[0048] **Figure 2** shows a closure 20 of the present invention. The closure is in the form of a flexible sheet. It may be made of any suitable material such as a plastics material. It is desirably made of PET. The closure 20 is for closing over the entire array 3 of compartments 4. The closure 20 and the compartments 4 are together arranged so that the closure and the compartments together form a series of sealed containers. Each sealed container is frangible from the interconnected array so that a sealed container may be removed from the array as will be described below.

[0049] The closure 20 is provided with a backing sheet 25 which acts as a protective sheet to allow handling of the closure 20 including printing thereon before it is applied to the tray 2. The closure 20 forms a general seal for across the top of the tray 2 as will be described in more detail below but it also forms individual frangible lids 29 which are frangible from sheet 20 and which are complimentary in shape to that of the compartments 4. In particular, each lid 29 is frangible about a frangible periphery 23, from the closure 20. Desirably the lid 29 has a tab overlying portion 31 corresponding to tab 8, a rim overlying portion 32 which corresponds to rim 7 and a mouth overlying portion 33 which corresponds to mouth 11.

[0050] Closure 20 has a top surface 21 and a bottom surface 22 (best seen from **Figure 5**). Desirably the whole top surface 21 is non-adhesive. Desirably the bottom surface is adhesive in selected discreet places. The bottom surface 22 is adhesive in selected areas and the adhesive areas are only exposed when the backing layer 25 is removed. This may be achieved by selectively applying adhesive, or alternatively adhering patches of material to the closure 20. In any event the effect achieved is that the closure 20 has non-adhesive zones 27 which will form the part of the underside of individual lids 29 that extends across the mouth 11 of each compartment 4. The non-adhesive zones 27 have been shaded differently in each of the rows of lids 29 to indicate that different information and/or colouring may be applied for ease of visual reference/distinction by a user.

[0051] More particularly it is desirable that the lid 29 is constructed as follows: the tab overlying portion 31 of the lid 29 has a non-adhesive zone 28; the rim overlying portion 32 is adhesive for adhering to the rim 7; the mouth overlying portion is non-adhesive, having a non adhesive portion 27 so that any material held within a compartment 4 which contacts it when in use will not adhere to it or otherwise be fouled with adhesive. Desirably the remainder of the sheet, that is the underside 22 thereof is adhesive so that the sheet can be firmly affixed to the tray to seal with it. This means that the remaining area of the closure 20,

which forms a web holding the lids 29 in place, will be adhesive and will seal to the frame 5. This means that individual “pots” in the form of compartments sealed with lids can be removed, leaving corresponding apertures in both the closure and the tray, but with the remainder of the closure adhered to the tray about said apertures.

[0052] The closure 20 has rebated corners 35 which are complementary in shape to the angular portions 18 of raised border 16 allowing the closure 20 to be positioned correctly relative to tray 2 (as best seen in **Figure 3**).

[0053] The closure 20 further comprises a flexible tab 40 to which a covering flap 50 (shown in **Figure 4**) can be attached. The flexible tab 40 acts as a hinge to allow relative movement of the flap 50 to the closure (and thus when the closure is affixed to the tray 2, relative to the tray) between a closed position overlying the closure 20/tray 2 and an open position where it does not overlie the closure.

[0054] The closure 20 may have applied to selected areas thereon, printed material.

[0055] **Figure 3** shows an assembled tray 2 (of **Figure 1**) and closure 20 (of **Figure 2**) after the backing sheet 25 is removed and the closure 20 is adhered to the tray 2.

[0056] In **Figure 3** the closure 20 has been run through a printer and had printed material applied, substantially at a position coincident with the mouth-overlying portion 33. The printed information 45 comprises a photo of the patient for a medical dosage and regime and text 47 indicating information about the patient and/or the medication. As seen in **Figure 3** the flexible tab 40 extends (projects) beyond the edge of the tray 2 to allow it to attach to a flap 50 and to act as a hinge as will be described in more detail below.

[0057] **Figure 4** shows a flap 50, which in the embodiment is a simple rigid flap constructed of suitable material, such as cardboard. It has a hinge end 52 for attaching to the flexible tab 40, a planar surface 51 onto which printed information can be applied and a folding catch portion 53 which is formed by folding about fold lines 54, to form a v-shaped configuration as shown in **Figure 5**.

[0058] **Figure 5** shows the full overall configuration of an assembly of the invention in exploded view for ease of reference. The tray 2 has been provided and the **Figure** additionally shows medication in the form of tablets 58 being placed in respective compartments 4 as indicated by arrows 59. A closure 20 (with printed material thereon and colour coded) has had its backing sheet removed and is presented for adhesion to the face of the tray 2. Additionally the flexible tab 40 is folded over (and it has an adhesive on its underside) so that the underside thereof faces upwardly and it is thus designed to adhere to the hinge portion/end 52 of flap 50 thus forming a live hinge where the flap 50 can be pivoted relative to the tray 2. The closure 20 is thus used to attach the flap 50 to the tray. The flap 50

has a protective function. Previously, such a function was fulfilled by an external cassette, for example made of plastics material, or a fold-over lid made integrally with the tray 2.

[0059] The folding catch portion 53 may be insertable in a suitable groove or recess in the tray 2. Desirably some identifying information, for example patient information, may be applied on the catch portion 53 at a position which is viewable by a person looking at a stack of such trays from an end-on position, for example on the (underside) surface indicated by arrow 55 in Figure 5 and as shown in **Figure 6**. Figure 6 shows the flap 50 in an open configuration with the flap 50 opened out using flexible tab 40 as the hinge. Arrows 61 indicate the movement about flexible tab 40. As shown in Figure 6 further relevant information, for example medication information and/or patient information may be provided on the underside of the flap 50 as illustrated by the example of the chart 57. **Figure 7** shows a top plan view of the assembly of the invention with the flap 50 in a closed position overlying (and abutting) the tray 2/closure 20 and in particular the interconnected array 3 of compartments 4.

[0060] **Figure 8** shows the hinge action in more detail. In particular from the partial cross-sectional view of **Figure 8** the hinge action of the flexible tab 40 can be clearly seen allowing the flap 50 to move between the open and closed position as indicated by arrow 61.

[0061] **Figure 9** shows more clearly the catch portion 53. It engages in a recess 60 by movement indicated by arrow 62. This is a simple mechanism to hold the flap in position when closed. Where the tray is sufficiently transparent the information on the catch portion can be read through a wall of the tray. Additionally or alternatively the catch portion can protrude sufficiently from the tray 2 to allow the material to be read.

[0062] **Figure 10** shows the intimate seal achieved between the closure 2 and the array 3 of interconnected compartments 4 by showing a close-up/sectional view of two neighbouring compartments 4 from the array 3.

[0063] **Figure 11** shows an individual compartment 4 which has been sealed by closure 2 and has then been broken away from the interconnected array with its individual lid 29 still intact. This provides an individual sealed container or sealed pot 70 which in the embodiment is a medication "pot" which is a compartment with a sealed lid. In **Figure 11** the compartment 4 has been used to hold a liquid medication 65. **Figure 12** shows another individual compartment 4 identical to that of Figure 11 but this time holding tablets/capsules 58.

[0064] **Figures 13 and 14** show how the contents of a compartment, for example medication, is accessed. To access the contents, a user pulls on the tab overlying portion 31 of the lid 29 which is not adhered to the tab portion 8 of the rim 7 of the compartment 4 as indicated by arrow 67. This causes the lid 29 to pull away and be removed from rim 7 (to

which it has been adhered) allowing the contents of the compartment 4 to be accessed with ease.

[0065] Even though some or all of the sealed containers formed by the closures/compartments are removed, the closures 2 will continue to hold the flap to the tray.

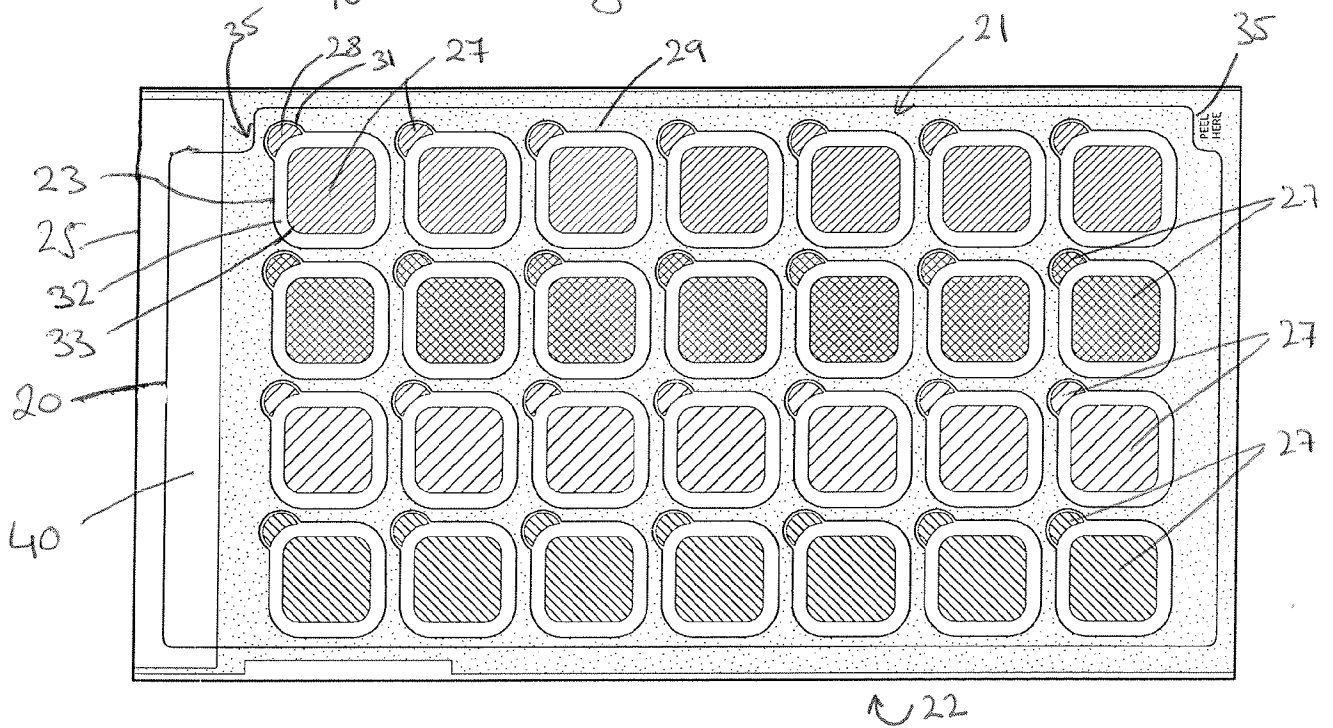
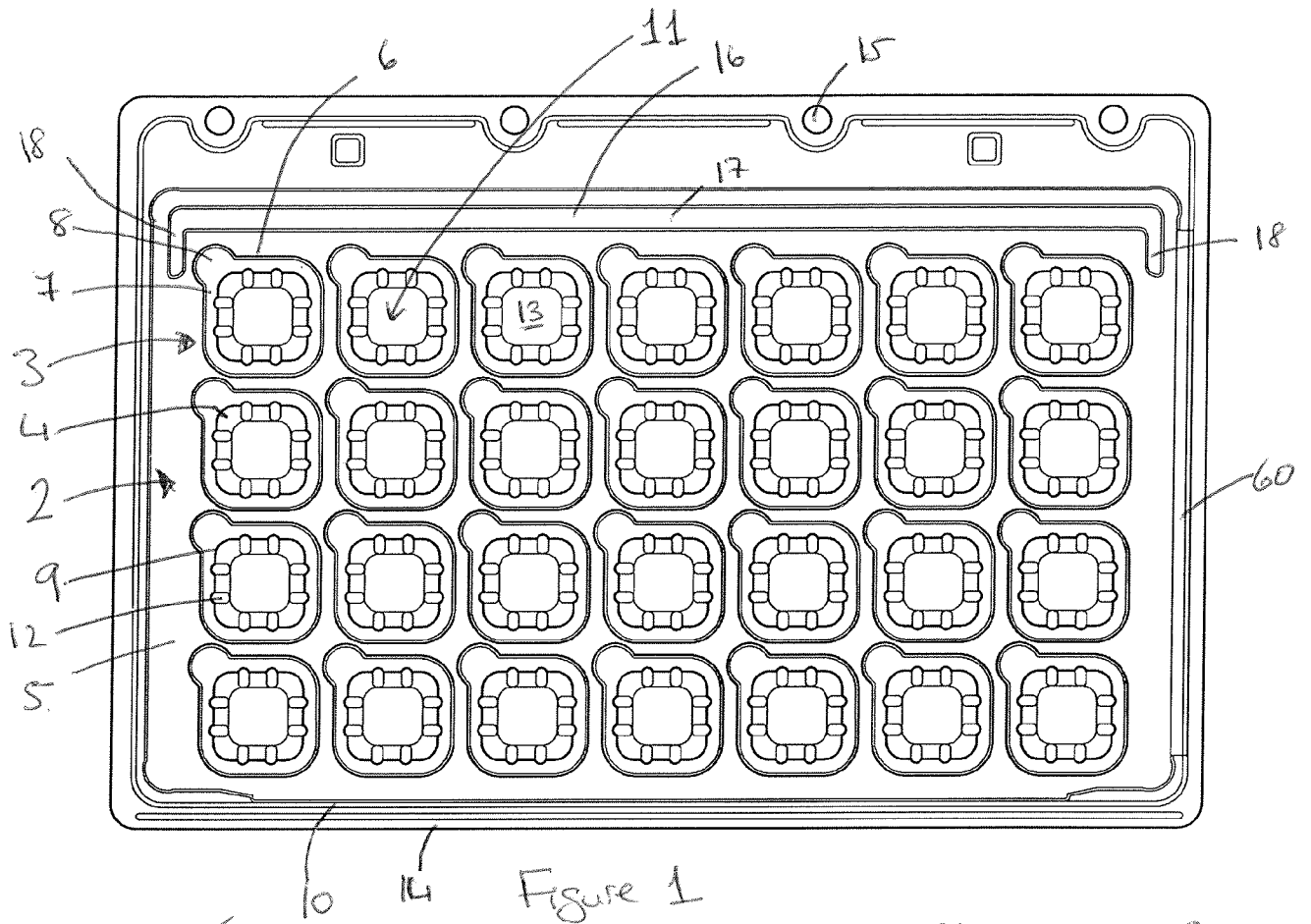
[0066] The words “comprises/comprising” and the words “having/including” when used herein with reference to the present invention are used to specify the presence of stated features, integers, steps or components but do not preclude the presence or addition of one or more other features, integers, steps, components or groups thereof.

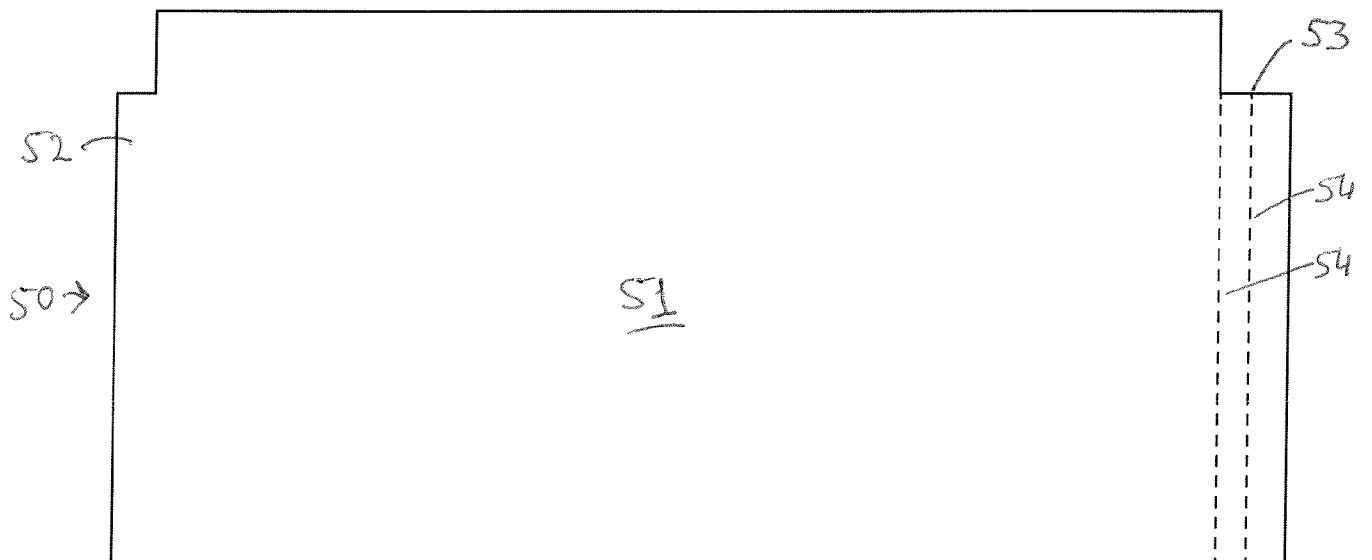
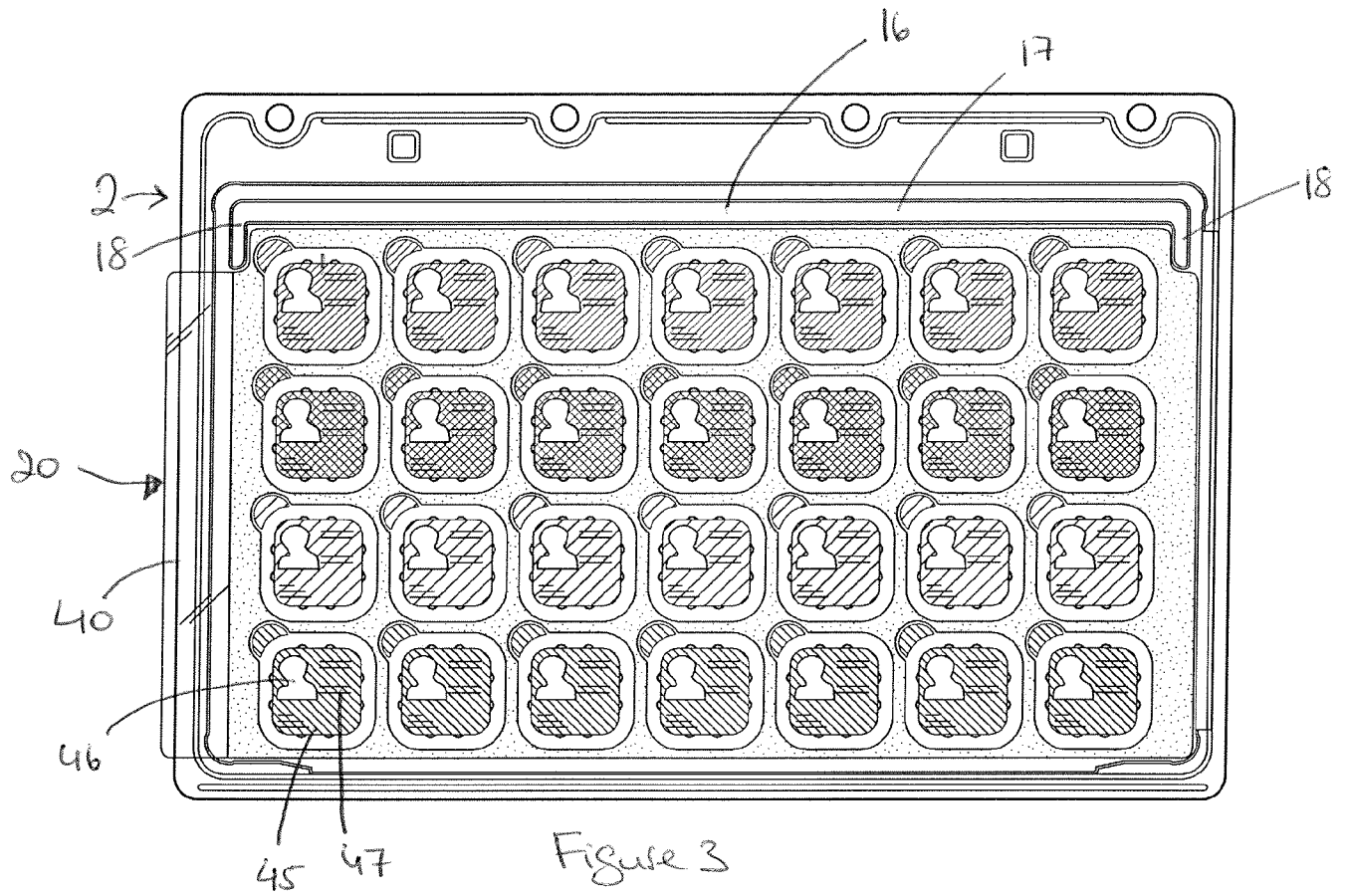
[0067] It is appreciated that certain features of the invention, which are, for clarity, described in the context of separate embodiments, may also be provided in combination in a single embodiment. Conversely, various features of the invention which are, for brevity, described in the context of a single embodiment, may also be provided separately or in any suitable sub-combination.

Claims

1. A tray closure assembly comprising:
 - (a) a tray comprising an interconnected array of compartments;
 - (b) a closure for the compartments being arranged so that the closure and the compartments form a series of sealed containers;
 - (c) an openable flap for overlying the closure, the flap being attached to the tray by attachment to the closure.
2. A tray closure assembly according to Claim 1 wherein each sealed container is frangible from the interconnected array so that a sealed container may be removed from the array.
3. A tray closure assembly according to Claim 1 or Claim 2 wherein the closure comprises an adhesive sheet and the flap is attached to the closure by adhesion to said adhesive sheet.
4. A tray closure assembly according to any preceding claim wherein the closure comprises a flexible tab to which the flap is secured, the flexible tab acting as a hinge to allow relative movement of the flap to the closure between a closed position overlying the closure and an open position where it does not overlie the closure.
5. A tray closure assembly according to Claim 4 wherein the flexible tab extends around and attaches to opposing sides of the flap.
6. A tray closure assembly according to Claim 4 or Claim 5 wherein the flexible tab extends around and adheres to opposing sides of the flap.
7. A tray closure assembly according to any one of Claims 4 to 6 wherein the flexible tab extends beyond one side of the tray in at least an open position of the flap.
8. A tray closure assembly according to any preceding claim wherein in a stacked arrangement the compartments of one tray are suspended in the compartments of a lower tray in a stack.
9. A tray closure assembly according to Claim 9 further comprising a peripheral skirt provided on one tray which is adapted to engage the lower tray so as to achieve the suspension.
10. A closure for a tray closure assembly where the tray closure assembly comprises
 - (a) a tray comprising an interconnected array of compartments;
 - (b) a closure for the compartments;
 - (c) an openable flap for overlying the closure,the closure being adapted so that it, together with the compartments form a series of sealed containers and the closure being adapted to attach the flap to the tray.

11. A closure according to Claim 10 wherein each sealed container is frangible from the interconnected array so that a sealed container may be removed from the array.
12. A closure according to Claim 10 or Claim 11 wherein the closure is formed as an adhesive sheet.
13. A tray closure assembly substantially as described herein with reference to and as illustrated in the accompanying drawings.
14. A closure for a tray closure assembly, the closure substantially as described herein with reference to and as illustrated in the accompanying drawings.





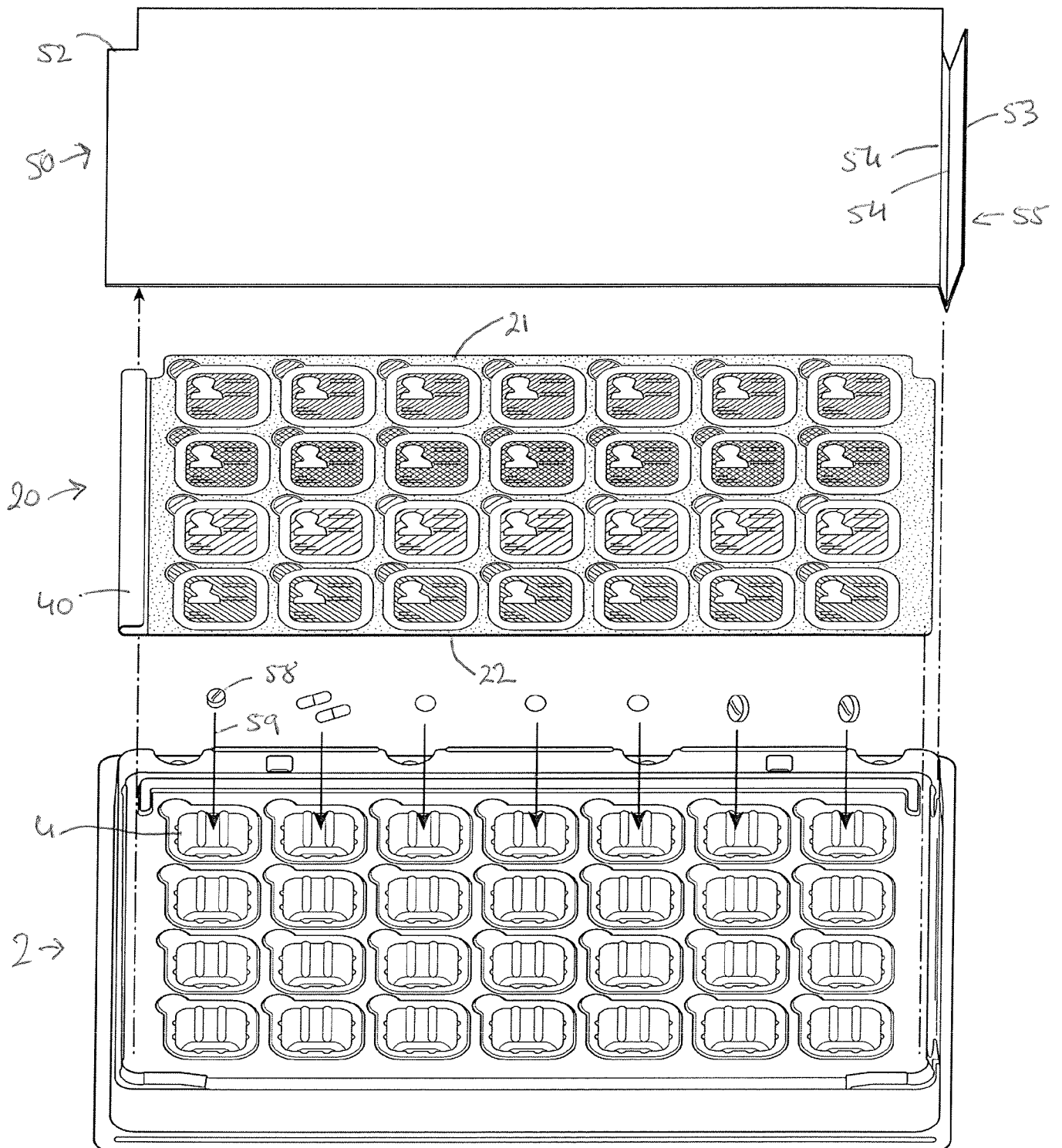


Figure 5

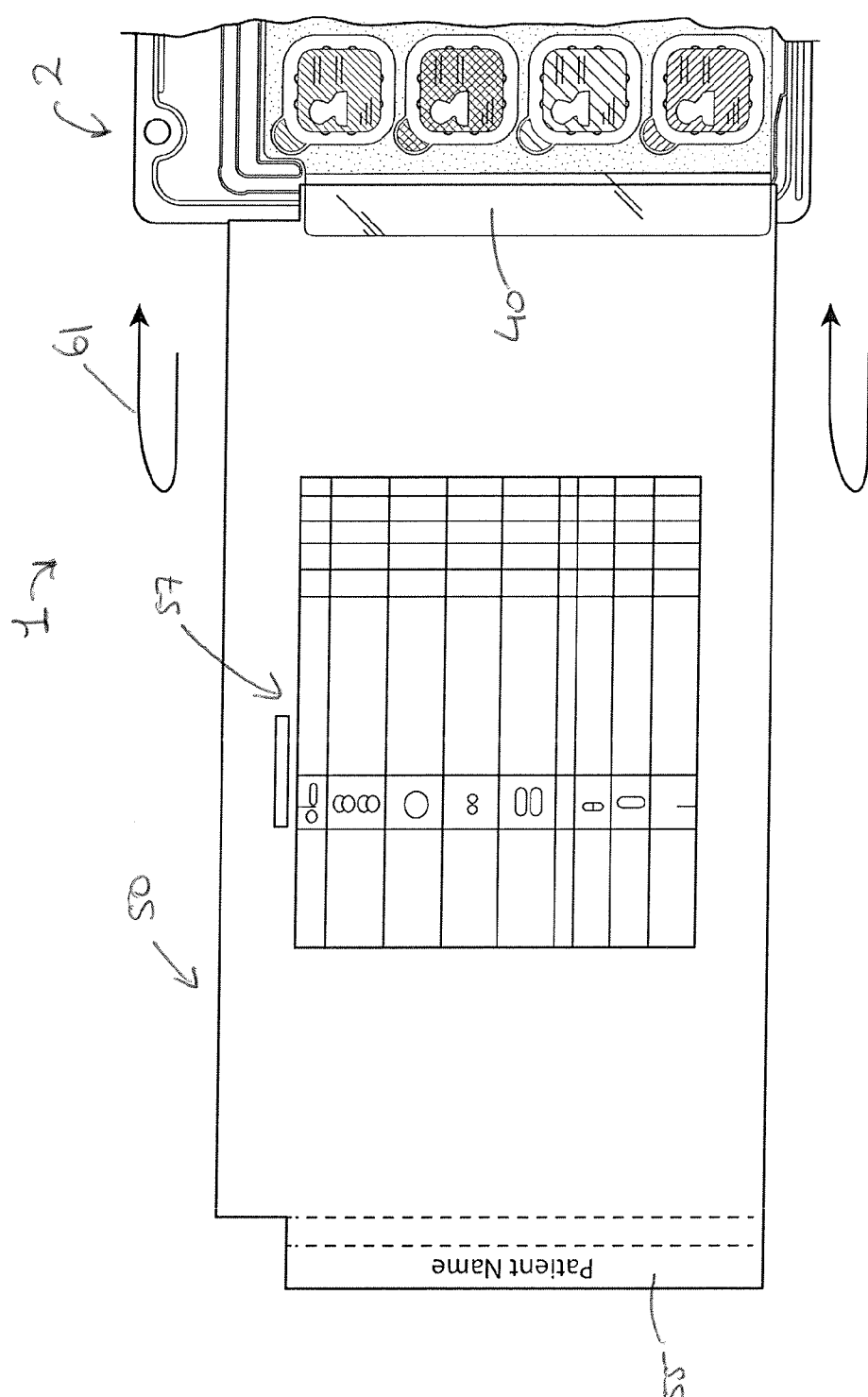


Figure 6

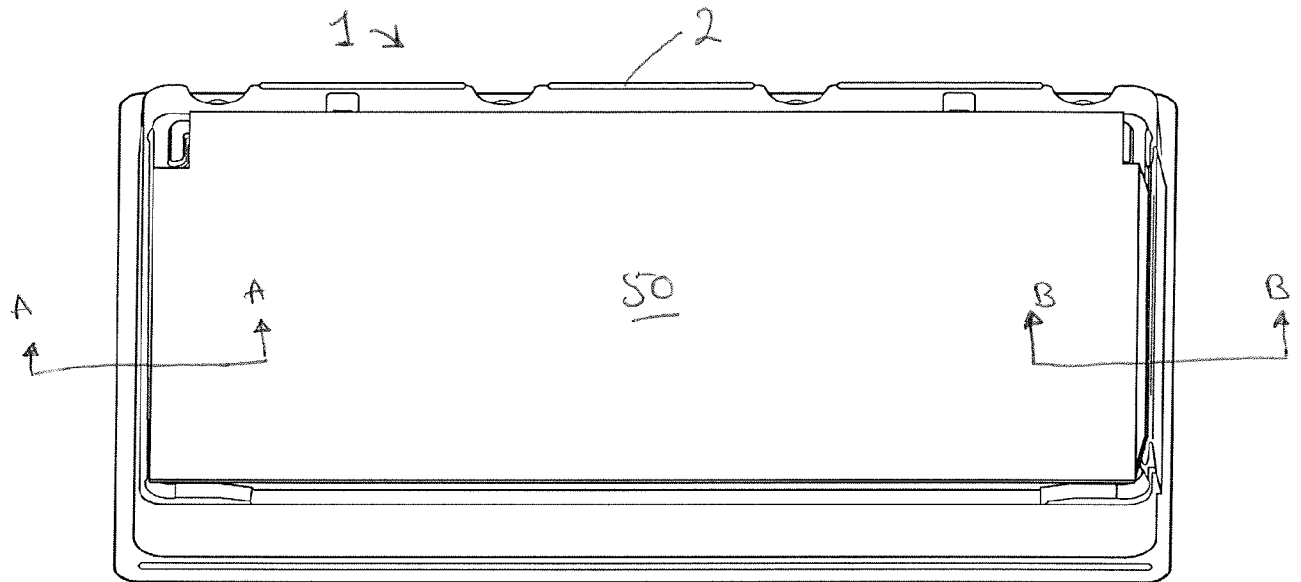


Figure 7

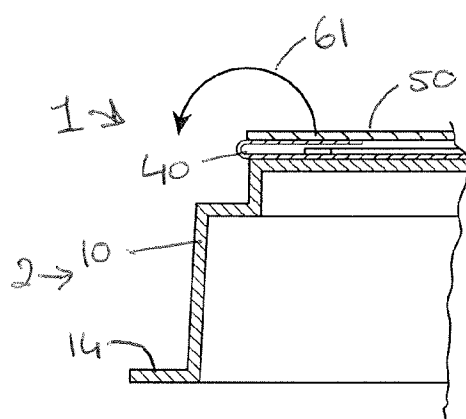


Figure 8

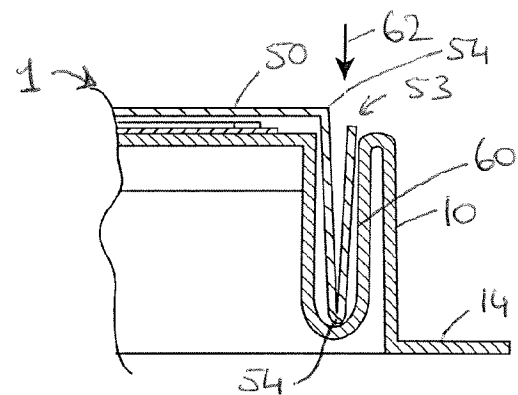


Figure 9

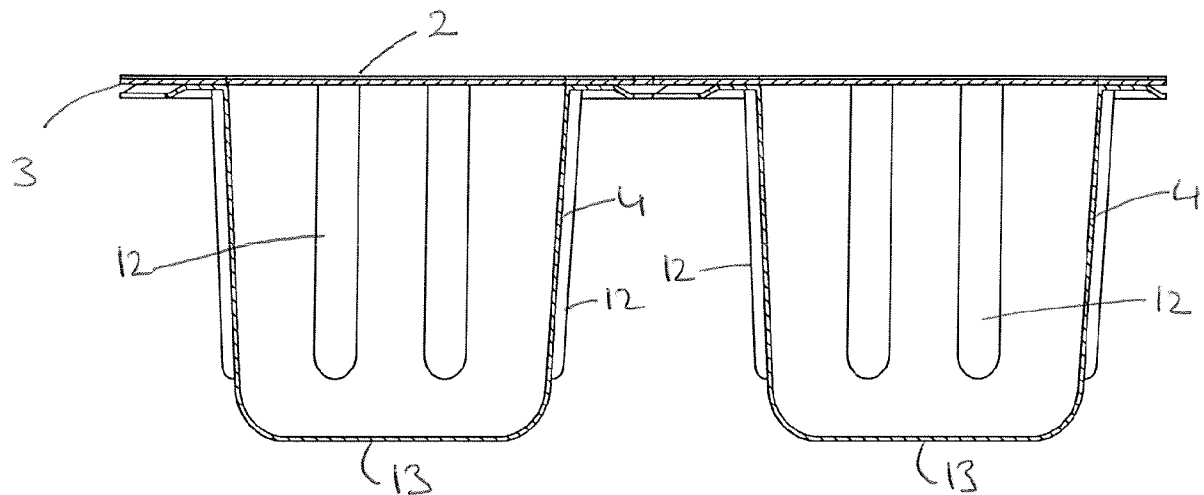


figure 10

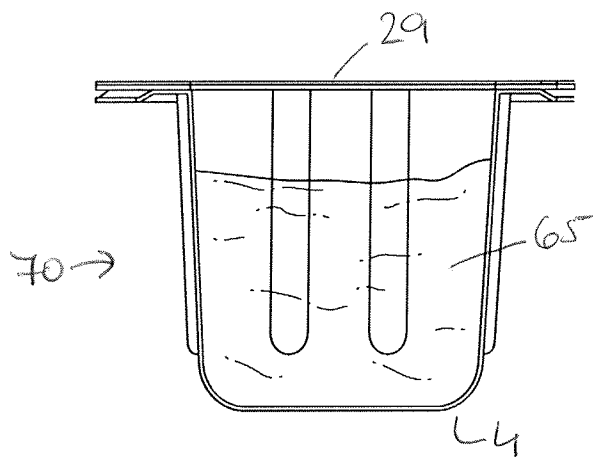


Figure 11

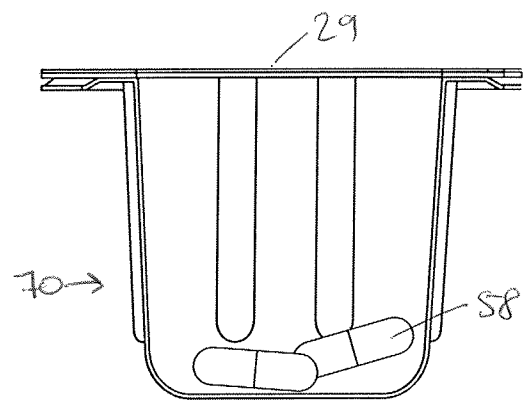


Figure 12

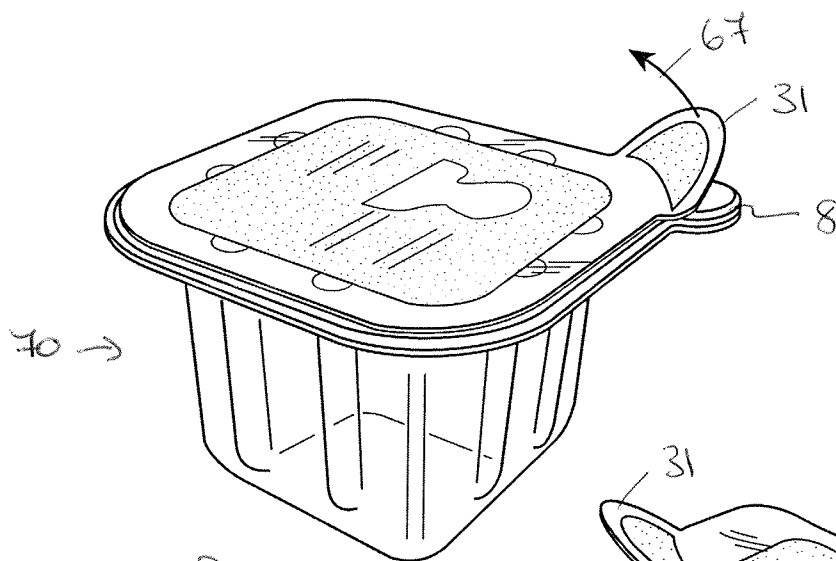


Figure 13

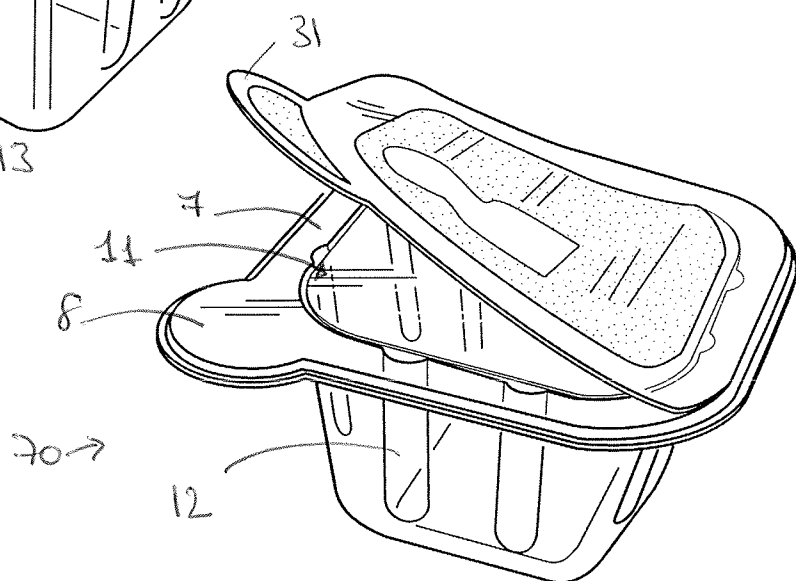


Figure 14

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2012/069801

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61J7/00
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)
A61J

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2010/136469 A1 (LARFRAN LTD [IE]; BURNS PAUL [IE]; O'BRIEN DOREEN [IE]; DAVIS RAY [IE]) 2 December 2010 (2010-12-02) cited in the application	10-12
A	abstract; figures 1,2,4,5,17,18 -----	1
X	WO 2005/102862 A1 (KOHL EDWIN [DE]; KLINGEL HANS [DE]) 3 November 2005 (2005-11-03) cited in the application	10-12
A	figures -----	1
X	US 6 681 935 B1 (LEWIS GRAHAM L [US]) 27 January 2004 (2004-01-27) cited in the application	10-12
A	the whole document -----	1
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Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

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

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

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

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

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

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

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

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

"&" document member of the same patent family

Date of the actual completion of the international search

19 December 2012

Date of mailing of the international search report

07/01/2013

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
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Authorized officer

Mammeri, Damya

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2012/069801

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2008/122771 A1 (PABARI ALPA SHANTILAL [GB]; PABARI HITEN SHANTILAL [GB]) 16 October 2008 (2008-10-16)	10-12
A	abstract; figures 3,4 -----	1
A	US 2007/221534 A1 (INTINI THOMAS D [CA]) 27 September 2007 (2007-09-27) figure 11 -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2012/069801

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2010136469 A1	02-12-2010	AU 2010252038 A1 EP 2435009 A1 GB 2484220 A US 2012060450 A1 WO 2010136469 A1	02-02-2012 04-04-2012 04-04-2012 15-03-2012 02-12-2010
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2012/069801

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 13, 14
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 13, 14

Claims 13 and 14 contain references to the drawings. According to Rule 6.2(a) and PCT Guidelines 5.10, claims should not contain such references except where absolutely necessary, which is not the case here.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.2), should the problems which led to the Article 17(2) declaration be overcome.