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(54) Title: PORTABLE LIQUID DISPENSER

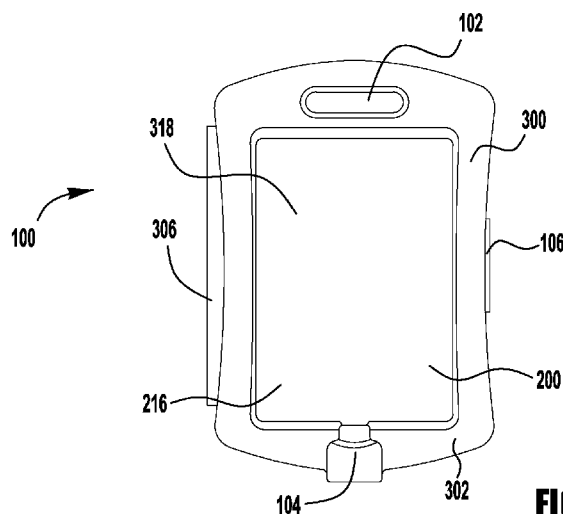


FIG. 1

(57) Abstract: Portable liquid dispensers are disclosed herein, including a bracket and a pouch. The pouch comprises a container portion, a flange portion surrounding the container portion, and a channel portion formed in the flange portion for providing fluid communication from an interior of the container portion through the flange portion. The bracket holds the flange portion of the pouch in order to form the liquid dispenser.

PORTABLE LIQUID DISPENSER

RELATED APPLICATIONS

[0001] This patent application claims priority to and the benefits of U.S. Patent Application Serial No. 13/792,118 filed on March 10, 2013, and entitled PORTABLE LIQUID DISPENSER and priority to and the benefits of U.S. Provisional Patent Application Serial No. 61/664,391 filed on June 26, 2012, and entitled PORTABLE LIQUID DISPENSER. These applications are incorporated herein by reference in their entirety.

TECHNICAL FIELD

[0002] The present invention relates generally to liquid dispenser systems and more particularly to a portable liquid dispenser, as well as a disposable refill / replacement pouch for using with such a dispenser.

BACKGROUND OF THE INVENTION

[0003] Liquid dispenser systems, such as liquid soap and sanitizer dispensers, provide a user with an amount of liquid upon actuation of the dispenser. It is desirable to provide such a dispenser that is portable, easily recharged once the dispenser runs out of liquid to dispense, and inexpensive to produce.

SUMMARY

[0004] Portable liquid dispensers are disclosed herein. In one embodiment, a liquid dispenser comprises a bracket and a pouch. The bracket comprises a first portion and a second portion, such that the first portion may be releasably connected to the second portion in a closed bracket position. The pouch comprises a container portion, a flange portion surrounding the container portion, and a channel portion formed in the flange portion for

providing fluid communication from an interior of the container portion through the flange portion. The first portion and the second portion of the bracket hold the flange portion of the pouch when in the closed bracket position in order to form the liquid dispenser.

[0005] In this way, a simple and economical portable liquid dispenser including a replaceable pouch is provided.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] These and other features and advantages of the present invention will become better understood with regard to the following description and accompanying drawings in which:

[0007] Figure 1 is a front view of a portable liquid dispenser 100;

[0008] Figure 2 is a front view of a pouch 200 for use in the dispenser 100;

[0009] Figure 3 is a perspective view of a bracket 300 for use in the dispenser 100, and partially shows how the valve member 208 of the pouch 200 fits within the bracket 300; and

[0010] Figure 4 is a perspective view of the dispenser 100, with an attachment 400.

DETAILED DESCRIPTION

[0011] Figure 1 illustrates a first exemplary embodiment of a portable liquid dispenser 100. The dispenser 100 includes a pouch 200 and a bracket 300, which are described further below. A slot 102 in the dispenser 100 provides a simple means of attaching the dispenser 100 to another item, such as a keychain, carabiner, necklace, bracelet, purse, book bag, identification card, IV stand, or the like. An outlet 104 of the dispenser 100 discharges a liquid upon actuation of the dispenser 100. A pouch release 106 of the dispenser 100 may be operated to remove the pouch 200 from the bracket 300, for example to replace a depleted pouch with a new liquid-filled pouch.

[0012] Figure 2 illustrates an exemplary pouch 200 for use in the dispenser 100. The pouch 200 includes a flange portion 202 surrounding a container portion 204. The container portion 204 provides a flexible bag-like container to store a supply of liquid within an interior of the pouch 200 and therefore the dispenser 100. In various embodiments, the contained liquid could be for example a soap, a sanitizer, a cleanser, a disinfectant or some other dispensable liquid. The exemplary pouch 200 is composed of a flexible film material which is sealed

around the edges in order to form the flange portion 202. The seal may be a heat weld, an adhesive, or the like. The pouch 200 may advantageously be refillable, replaceable or both refillable and replaceable within the bracket 300. In other embodiments the pouch 200 may be neither refillable nor replaceable within the bracket 300.

[0013] The flange portion 202 of the pouch 200 generally forms a seal around the container portion 204 so that liquid held within the container portion 204 will not leak out of the pouch 200. However, an exit channel 206 is formed within the otherwise sealed flange portion 202. When a user actuates the dispenser 100, such as for example by squeezing the container portion 204, liquid may escape from the container portion 204 through the exit channel 206.

[0014] A closure means may be placed within or next to the exit channel 206 in order to help ensure that liquid is not unintentionally dispensed from the container portion 204. The closure means may comprise, for example, a valve member 208 held within the channel 206, such as by heat welding. The valve 208 may be a slit valve or any other type of valve that has a desired cracking pressure. Preferably, the cracking pressure of the valve 208 is high enough so that the liquid contained within the pouch 200 is not accidentally dispensed. A suitable valve 208 is an LMS valve with a backing member.

[0015] In alternative embodiments, the closure means may include a pumping mechanism (not shown), such as an elastomeric dome pump. U.S. Patent No. 7,806,301 to Ciavarella et al., U.S. Patent Application Publication No. 2008/0149666 to LaFlamme et al., and U.S. Patent Application Publication No. 2011/0031278 to Han de Man each disclose a suitable elastomeric dome pump structure for use as a closure means in the pouch 200. Those three references are each hereby incorporated by reference into the present disclosure for their respective teachings regarding elastomeric dome pump assemblies.

[0016] The closure means may also include a cap 210 placed over the outlet 206 of the pouch 200. In some embodiments, the cap 210 is removable from the pouch 200 but not replaceable. Such a cap 210 is useful, for example, to help ensure liquid does not escape from the container portion 204 during shipment and storage of the pouch 200 before it is placed within a bracket 300 to form a dispenser 100. A removable but not replaceable cap 210 may comprise a tear off tab. In other embodiments, the cap 210 may be both removable and replaceable. Such a cap 210 remains in place over the channel 206 until it is removed by a user in order to actuate the dispenser 100, and then re-installed by the user over the channel

206 after actuation. A removable and replaceable cap 210 may comprise a threaded element or a snap-fit element which fits over a mating element on a valve member 208 or a pumping mechanism.

[0017] The closure means may include only a valve member 208, only a pump mechanism (not shown), only a cap 210, or any combination thereof. One of ordinary skill in the art will recognize several other structures which will form or supplement a suitable closure means for the exit channel 206.

[0018] A foaming element (not shown) may also be disposed in the exit channel 206. Such a foaming element mixes liquid from the container portion 204 together with air in a swirling motion to form a foamy mixture as the liquid is dispensed through the exit channel 206. Suitable foaming elements include, for example, one or more screens, meshes, porous membranes, or sponges. In that event, the dispenser 100 may include an air pump (not shown) with an air conduit leading to a mixing chamber (not shown) disposed within the exit channel 206.

[0019] The flange portion 202 of the pouch 200 may have one or more apertures 212 formed therein. The particular embodiment of Figure 2 has a total of eight apertures 212 formed within the flange portion 202. The flange portion 202 may also have a slot portion 214 formed therein.

[0020] The container portion 204 of the pouch 200 may have a face 216 on which product information, advertising information, instructions, or the like are provided. Figures 1 and 2 show two different exemplary embodiments of such a face 216. The face 216 may contain identification information, so that the dispenser 100 may simultaneously serve as an identification card for use in large facilities such as hospitals, restaurants or factories in which employee sanitation is a particular concern.

[0021] Figure 3 illustrates an exemplary bracket 300 for use in the dispenser 100. The exemplary bracket 300 is composed of a single member including a first portion 302 and a second portion 304 connected by a living hinge 306. Other bracket embodiments (not shown) may be composed of separate first and second portions without any hinge or other element which permanently connects the two portions. The bracket 300 is formed of a relatively rigid material in comparison with the pouch 200, such as an injection molded ABS plastic material. Figure 3 illustrates the bracket 300 in an open position. A releasable

connection means permits the first bracket portion 302 to be connected to the second bracket portion 304 in a closed position so that the flange portion 202 of the pouch 200 is held in between to form a dispenser 100. Figures 1 and 4 illustrate the bracket 300 in a closed position.

[0022] In one embodiment, the releasable connection means includes one or more posts on one of the bracket portions 302 and 304 which snap-fit into mating receptacles in the opposite bracket portion. In the embodiment 300 shown in Figure 3, eight posts 308 are formed in the second bracket portion 304, while eight mating receptacles 310 are formed in the first bracket portion 302. Of course, any number of post-receptacle combinations may be used, and the post-receptacle orientation between the two bracket portions may be reversed. When the bracket portions 302 and 304 are closed about the hinge 306, the posts 308 are received within the receptacles 310 to releasably connect the bracket portions 302 and 304. In some embodiments, the flange portion 202 of the pouch 200 may have apertures 212 which also receive the posts 308 upon connection of the first and second bracket portions 302 and 304. This helps to ensure the pouch 200 is properly aligned between the two bracket portions 302 and 304 to form a dispenser 100.

[0023] In another embodiment, the releasable connection means includes outer edge elements on the bracket portions 302 and 304 which snap-fit together upon connection between the two bracket portions. Thus, in the embodiment 300 of Figure 3, the first bracket portion 302 has a lip 312 which snap-fits into a socket 314 on the second bracket portion 304. When the bracket portions 302 and 304 are closed about the hinge 306, the lip 312 is received within the socket 314 to releasably connect the bracket portions 302 and 304. In this way a pouch release 106 is also formed, such that a user may easily pull the lip 312 apart from the socket 314 to separate the two bracket portions 302 and 304 and thereby release the pouch 200.

[0024] The releasable connection means may include only the posts 308 and the receptacles 310, or only the lip 312 and the socket 314, or both structures. One of ordinary skill in the art will recognize several other structures which will form or supplement a suitable connection means between the two bracket portions 302 and 304. In this way the liquid dispenser 100 allows for a simple and inexpensive replacement of the liquid supply. Once the supply of liquid in the container portion 204 of the pouch 200 runs out, the now-empty disposable pouch 200 may be replaced with a new pouch 200 containing a supply of liquid.

[0025] The two bracket portions 302 and 304 may have mating slot portions 316. Upon connection between the two bracket portions 302 and 304, the slot portions 316 align with the slot portion 214 of the pouch 200 in order to form the slot 102 of the dispenser 100.

[0026] When the two bracket portions 302 and 304 are connected together in a closed position, they form a common orifice 318 which receives the container portion 204 of the pouch 200. In that way, the user may easily determine when the supply of liquid in the container portion 204 has run out. And, if the dispenser 100 is actuated by squeezing the container portion 204 to dispense liquid, this allows easy access by the user.

[0027] The two bracket portions 302 and 304 have fitments 320 to form a channel which corresponds to the exit channel 206 of the pouch 200. If the closure means of the pouch 200 is autonomous, such as a valve 208, the fitments 320 may be shaped to completely enclose the closure means within the bracket 300. If on the other hand the closure means of the pouch 200 require user interaction, such as a pumping mechanism or cap, the fitments 320 may be shaped to permit user access to and operation of the closure means. In one embodiment, a cap (not shown) is connected to the fitments 320 in order to close off the outlet 206.

[0028] In some embodiments, it may be useful to form the pouch 200 closure means as part of the bracket 300 rather than the pouch 200 itself. As discussed above, Figure 3 partially shows how the valve member 208 of the pouch 200 may fit within the bracket 300. In an alternative embodiment (not shown), the slit valve or other type of valve may be placed in the fitments 320 of the bracket 300. In that event, the valve 208 need not be incorporated with the disposable pouch 200, decreasing the costs of making replacement pouches 200. However, moving the valve to the bracket 300 can complicate the assembly of the dispenser 100, because it requires making a liquid flow connection and not merely mechanical connections.

[0029] Figure 4 illustrates an attachment 400 attached to the portable dispenser 100 via the slot 102. The illustrated attachment 400 is a carabiner lanyard mechanism, which may in turn be attached to a person's belt, purse, coat, or other accessory or article of clothing. A lanyard string portion (not shown) of the attachment 400 is retractably stored within a housing 402 in order to permit easily portable use of the dispenser 100.

[0030] While the present invention has been illustrated by the description of embodiments thereof and while the embodiments have been described in considerable detail, it is not the intention of the applicant to restrict or in any way limit the scope of the appended claims to such detail. Additional advantages and modifications will readily appear to those skilled in the art. Therefore, the invention, in its broader aspects, is not limited to the specific details, the representative apparatus and illustrative examples shown and described. Accordingly, departures may be made from such details without departing from the spirit or scope of the applicant's general inventive concept.

CLAIMS

I claim:

1. A liquid dispenser comprising a bracket (300) and a pouch (200), wherein

the bracket (300) comprises a first portion (302) and a second portion (304), such that
the first portion (302) may be releasably connected to the second portion (304)
in a closed bracket position;

the pouch (200) comprises a container portion (204), a flange portion (202) at least
partially surrounding the container portion (204), and a channel portion (206)
formed in the flange portion (202) for providing fluid communication from an
interior of the container portion (204) through the flange portion (202);

wherein the first portion (302) and the second portion (304) of the bracket (300) hold
the flange portion (202) of the pouch (200) when in the closed bracket position
in order to form the liquid dispenser.
2. The liquid dispenser of claim 1, wherein the first portion (302) and the second portion
(304) of the bracket are permanently connected to each other by a living hinge (306).
3. The liquid dispenser of claim 1, further comprising a releasable connection means
(106) for releasably connecting the first portion (302) and the second portion (304) of
the bracket (300) in the closed bracket position.
4. The liquid dispenser of claim 1, wherein the first portion (302) of the bracket (300)
comprises a receptacle (310) and the second portion (304) of the bracket (300)
comprises a post (308), such that the post (308) snap-fits into the receptacle (310)
when the bracket (300) is in the closed bracket position.
5. The liquid dispenser of claim 4, wherein the pouch (200) further comprises an
aperture (212) to receive the post (308) when the bracket (300) is in the closed bracket
position.
6. The liquid dispenser of claim 1, wherein the first portion (302) of the bracket (300)
comprises an outer edge lip element (312) and the second portion (304) of the bracket
(300) comprises an outer edge socket element (314), such that the lip element (312)

snap-fits into the socket element (314) when the bracket (300) is in the closed bracket position.

7. The liquid dispenser of claim 1, wherein the first and second portions (302), (304) of the bracket (300) each comprise an orifice (318) which receives the container portion (204) of the pouch (200) when the bracket (300) is in the closed bracket position.
8. The liquid dispenser of claim 7, wherein the first and second portions (302), (304) surround an entire periphery of the container portion (204) of the pouch (200) when the bracket (300) is in the closed bracket position.
9. The liquid dispenser of claim 1, further comprising a slot (316) for attaching the liquid dispenser to another item.
10. The liquid dispenser of claim 1, wherein the pouch (200) further comprises a closure means (208) for helping to ensure that liquid is not unintentionally dispensed from the container portion (204) of the pouch (200).
11. The liquid dispenser of claim 1, wherein the pouch (200) further comprises at least one of a valve and a pump disposed in the channel portion (206).
12. The liquid dispenser of claim 11, wherein at least one of the first and second portions (302), (304) of the bracket (300) comprises a fitment (320) which receives the valve or pump when the bracket (300) is in the closed bracket position.
13. The liquid dispenser of claim 11, wherein the pouch (200) comprises an elastomeric dome pump.
14. The liquid dispenser of claim 1, further comprising a removable cap (210) disposed over an outlet of the pouch (200).
15. A pouch (200) for use with a bracket (300) in order to form a liquid dispenser, wherein the bracket (300) comprises a first portion (302) and a second portion (304) such that the first portion (302) may be releasably connected to the second portion (304) in a closed bracket position, the pouch (200) comprising:

a container portion (204),

a flange portion (202) at least partially surrounding the container portion (204), and

a channel portion (206) formed in the flange portion (202) for providing fluid communication from an interior of the container portion (204) through the flange portion (202),

such that the first portion (302) and the second portion (304) of the bracket hold the flange portion (202) of the pouch (200) when in the closed bracket position in order to form the liquid dispenser.

16. A refill unit for use with a liquid dispenser, the refill unit comprising a pouch (200) having:

a container portion (204) forming an interior of the pouch (200);

a flange portion (202) at least partially surrounding the container portion (204), with at least one aperture (212) disposed in the flange portion (202) for securing the pouch (200) in the dispenser; and

a liquid outlet (206) connecting the pouch interior (214) with an environment outside of the pouch (200).

17. The refill unit of claim 16, further comprising a closure means (208) for the liquid outlet (206).
18. The refill unit of claim 16, further comprising a closure (208) for the liquid outlet (206).
19. The refill unit of claim 17, wherein the closure (208) comprises at least one of a valve, a pump, and a cap (210).

20. A refill unit for use with a liquid dispenser, the refill unit comprising a pouch (200) having:

a container portion (204) forming an interior of the pouch (200);

a flange portion (202) at least partially surrounding the container portion (204) and configured to be retained by a dispenser housing (302), (304) to hold the pouch (200) in the dispenser; and

a liquid outlet (206) connecting the pouch interior (204) with an environment outside of the pouch (200); and

a closure (208) for the liquid outlet (206).

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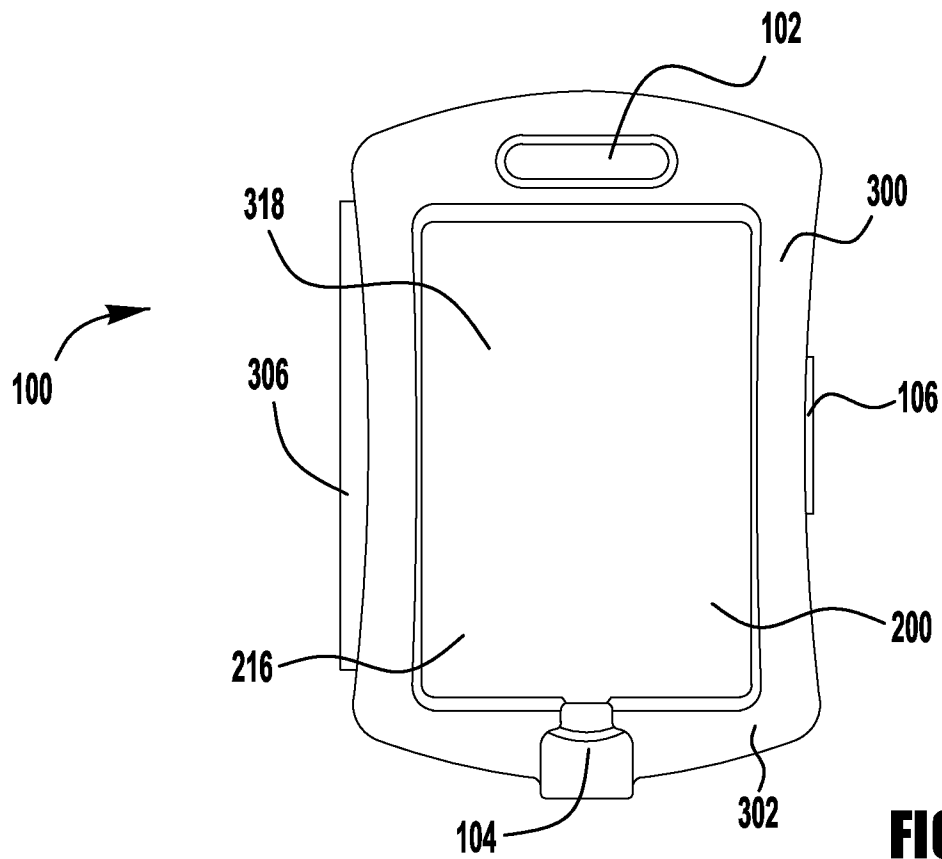


FIG. 1

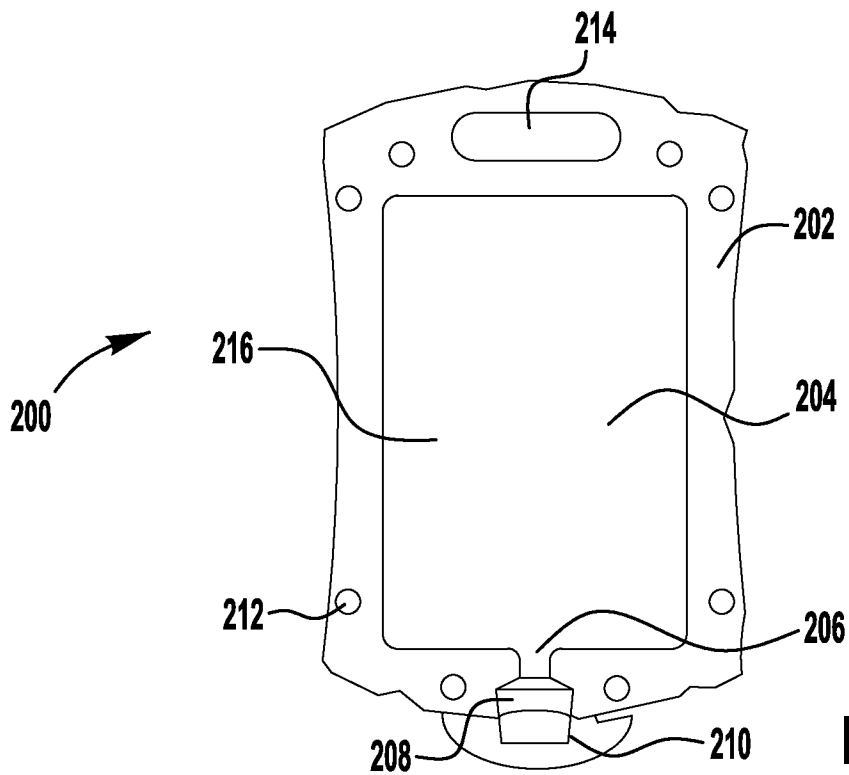


FIG. 2

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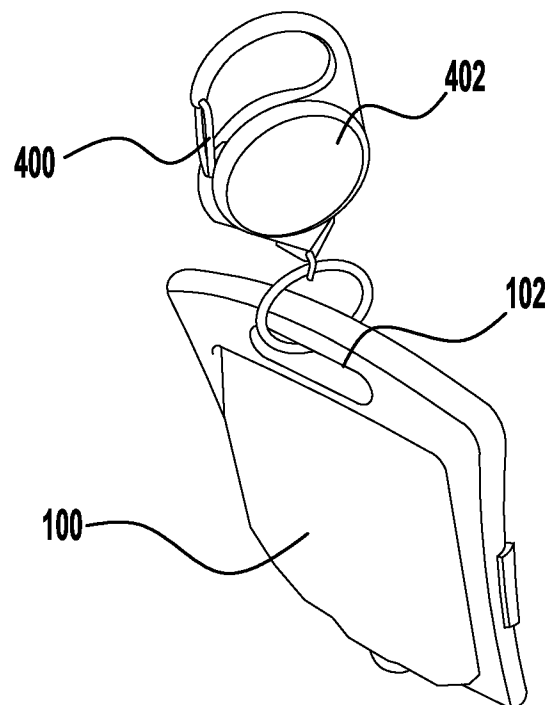
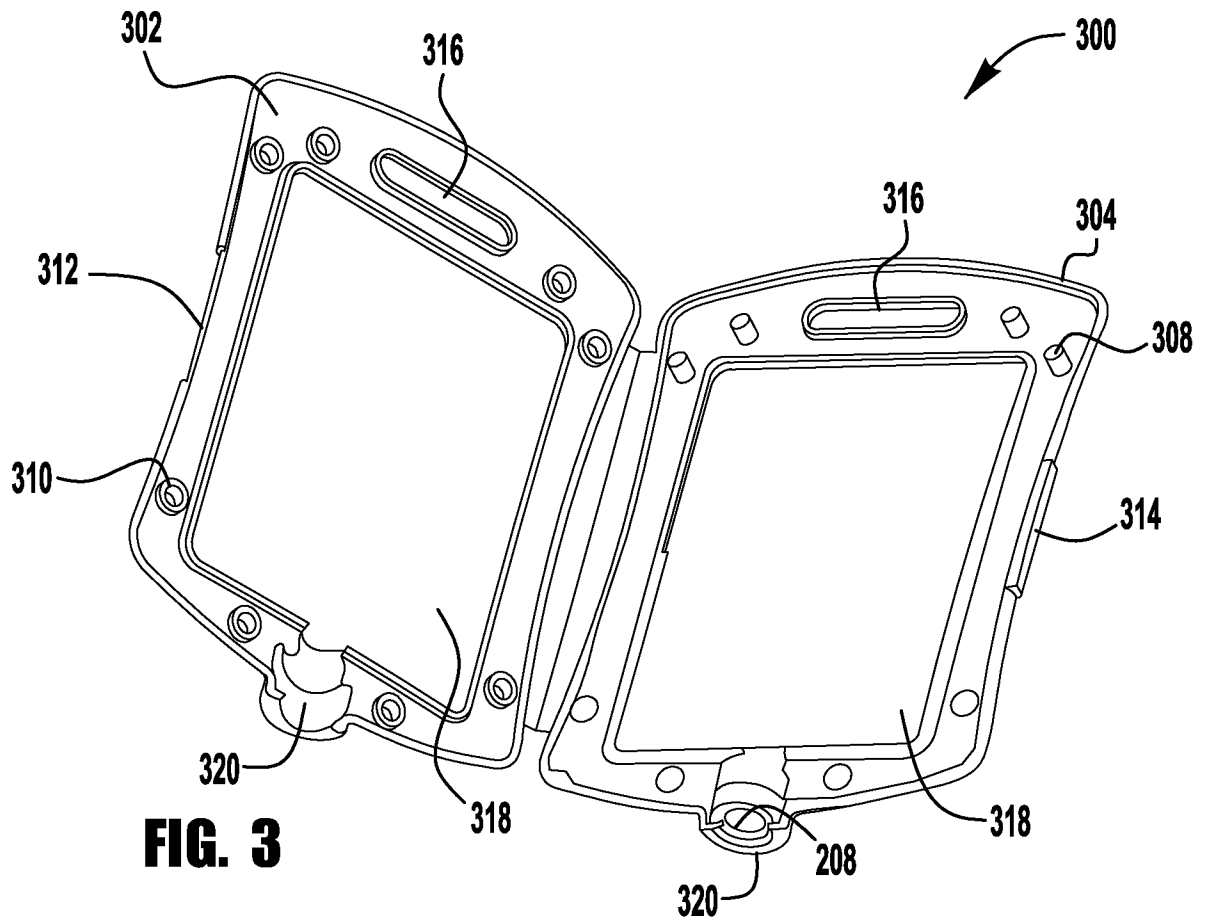


FIG. 4

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2013/047236

A. CLASSIFICATION OF SUBJECT MATTER

INV. B65D77/06 A47K5/12 A47K5/122 B05B11/00
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)
B65D A47K B05B

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)

EP0-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	WO 97/46465 A1 (BLACKMORES LIMITED [AU]; MELBOURNE INST TECH [AU]; ARMSTRONG MARK [AU]) 11 December 1997 (1997-12-11) figure 1	1-20
X	US 2010/252573 A1 (HETMANIOK CHRISTOPH [DE] ET AL) 7 October 2010 (2010-10-07) figure 1	1-20
A	WO 2008/024097 A1 (KANFER JOSEPH [US]; SAYERS RICHARD [US]; SIMKINS NELSON [US]) 28 February 2008 (2008-02-28) the whole document	9
A	US 2011/031278 A1 (HAN DE MAN EELCO [NL]) 10 February 2011 (2011-02-10) cited in the application the whole document	13



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2013/047236

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