



US 20170137183A1

(19) **United States**(12) **Patent Application Publication**
BARRERA NAVARRO(10) **Pub. No.: US 2017/0137183 A1**(43) **Pub. Date: May 18, 2017**(54) **CLOSING DEVICE FOR CONTAINERS****Publication Classification**(71) Applicant: **Rafael BARRERA NAVARRO**,
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Vilamarxant (Valencia) (ES)(21) Appl. No.: **15/310,016**(22) PCT Filed: **Apr. 20, 2015**(86) PCT No.: **PCT/ES2015/070316**

§ 371 (c)(1),

(2) Date: **Nov. 9, 2016**(30) **Foreign Application Priority Data**

May 9, 2014 (ES) U201430627

(51) **Int. Cl.****B65D 47/08** (2006.01)**B65D 77/32** (2006.01)**B65D 47/10** (2006.01)**B65D 77/20** (2006.01)(52) **U.S. Cl.**CPC **B65D 47/0857** (2013.01); **B65D 77/20**(2013.01); **B65D 77/32** (2013.01); **B65D****47/10** (2013.01)

(57)

ABSTRACT

A package-sealing device that includes a sealing element provided with an outlet, the walls of the outlet being in contact with each other, making it close. The package-sealing device includes a closing element, and the sealing element is made up of a flexible sheet, said sealing element being partially attached to the closing element, such that the sealing element deforms when the closing element is removed, thus defining an outlet and closing it when the walls of the outlet are in contact with each other.

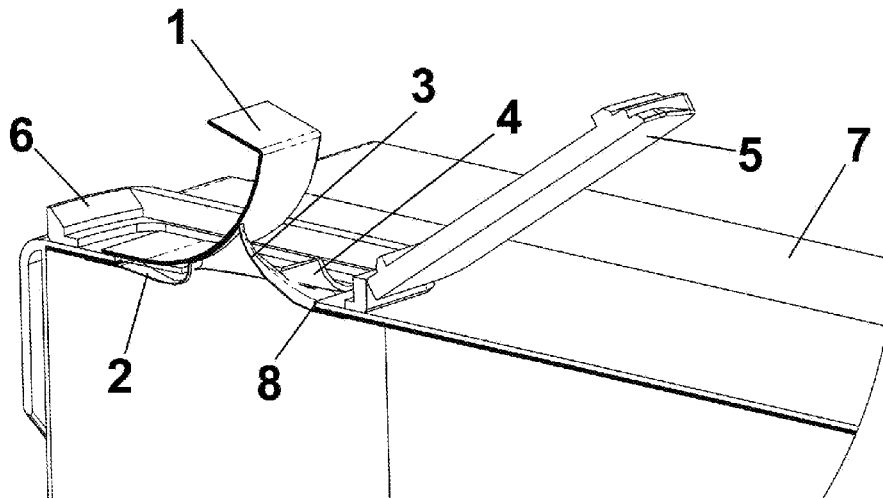


FIG. 1

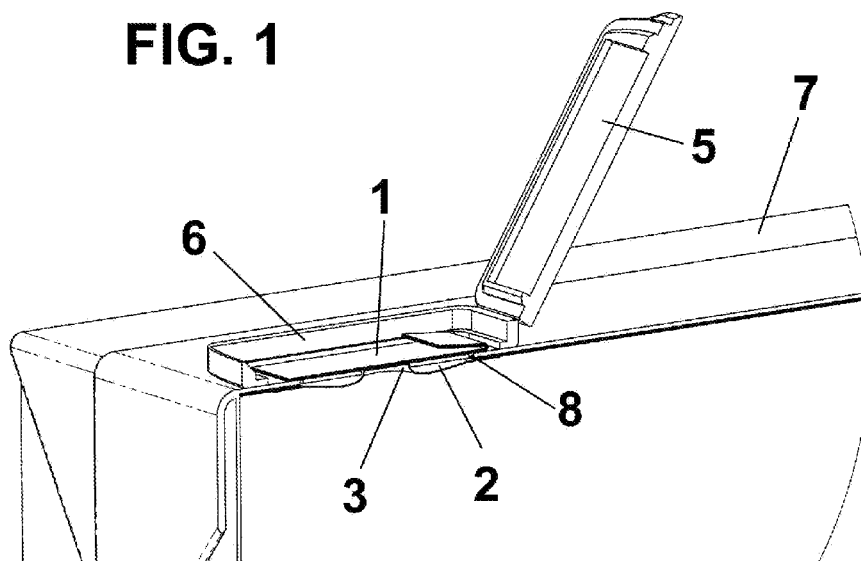
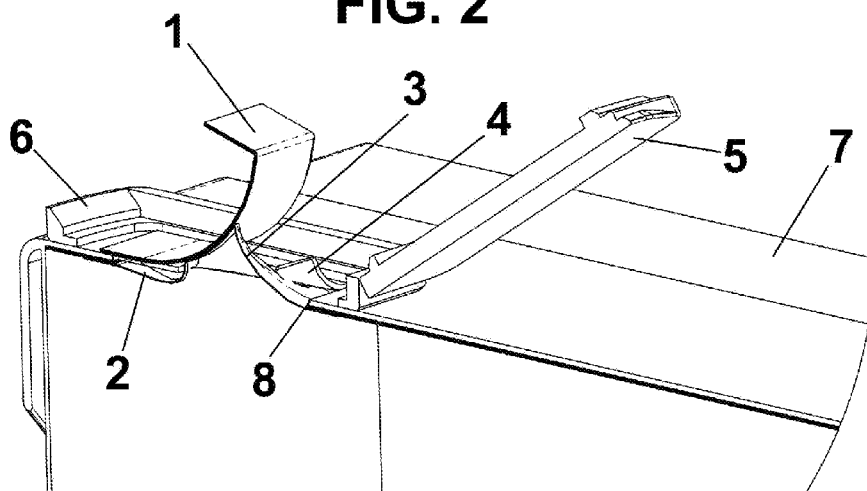


FIG. 2



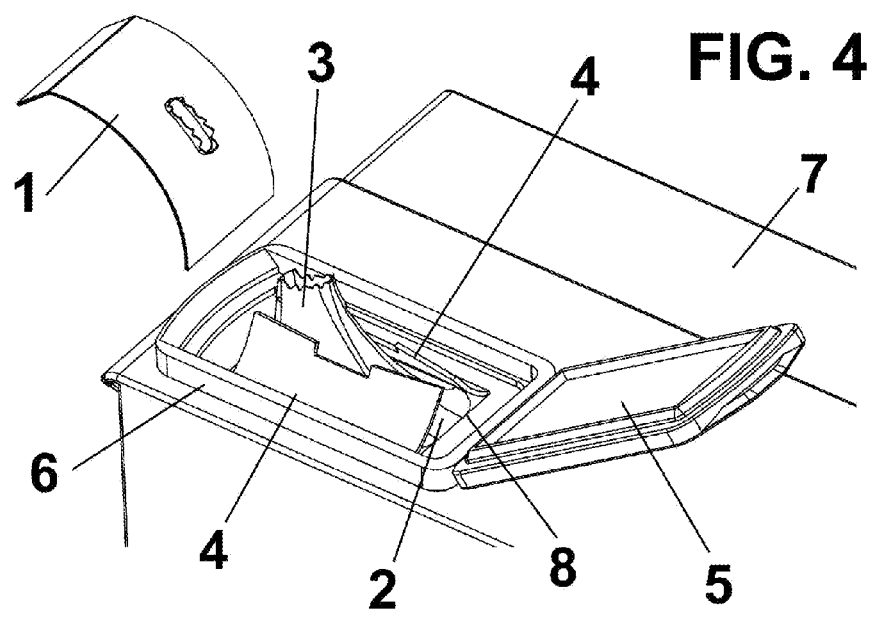
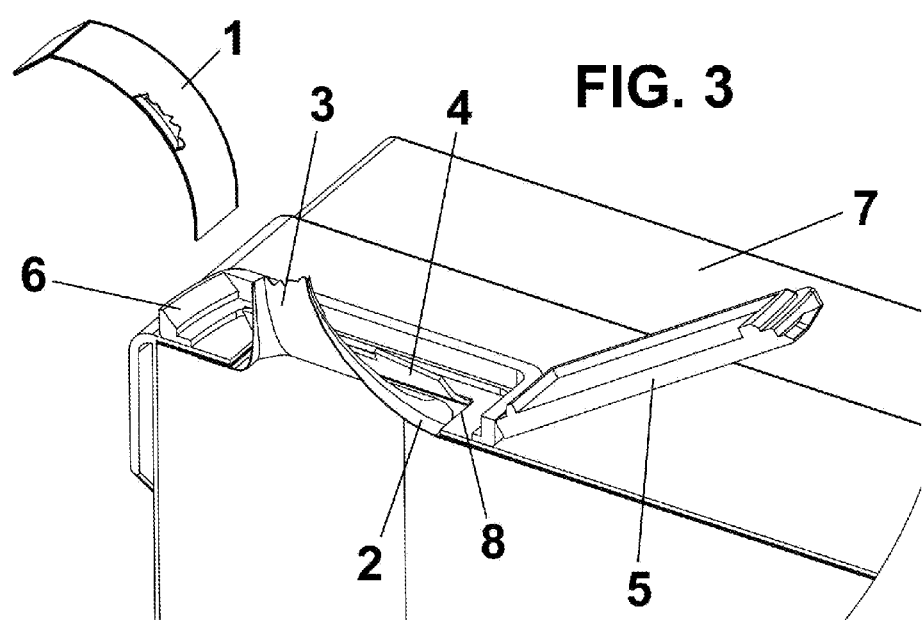
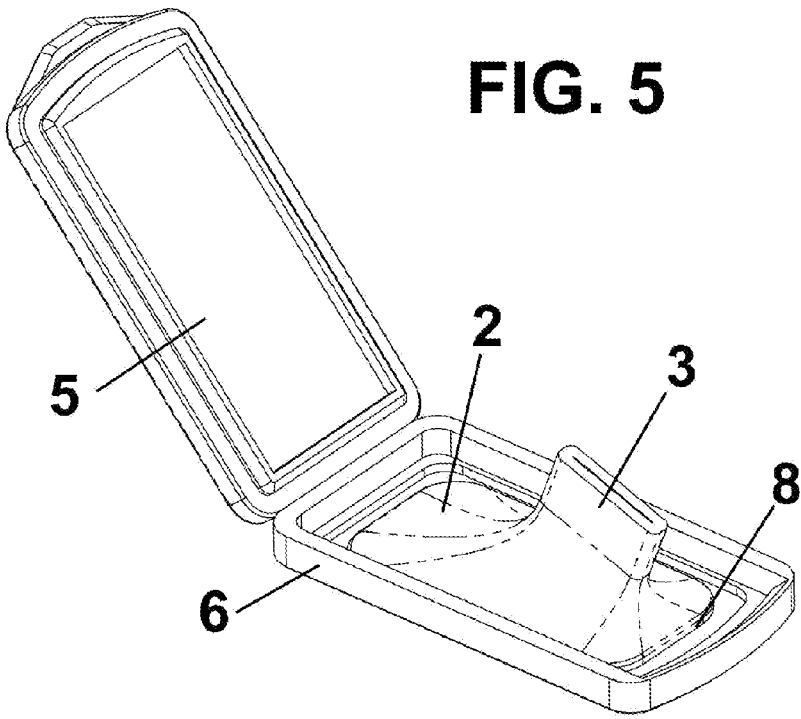


FIG. 5



CLOSING DEVICE FOR CONTAINERS

[0001] The present invention relates to a package-sealing device that avoids air from entering the package after the package is opened for the first time.

BACKGROUND OF THE INVENTION

[0002] It is common to use hermetically sealed packages to hold food or beverages so that these foods and beverages maintain their quality and be kept in perfect condition until consumption.

[0003] One of the issues raised by these packages consists in that once they are opened for the first time, they cannot be hermetically re-sealed thus having to consume the beverage or food inside the package within a relatively short period of time, otherwise it spoils and cannot be consumed.

[0004] A common example of this type of packaging is the so-called Tetra Brik®. When this commonly used package is opened for the first time, a corner of the same is snipped off, thus leaving it completely exposed to air inlet through this corner, whereby the contents of the package have to be consumed within a short period of time.

[0005] To overcome these disadvantages, packages with an articulated closing element were designed so that a tab, which covered an opening, had to be removed in order to open the package for the first time, and said articulated closing element then allowed sealing the opening.

[0006] Although this solution has allowed extending the time period for the consumption of package contents, practice has established that said time period may be insufficient, since this type of closing element allows air to enter into the package.

[0007] Therefore there is an evident need for a device for sealing packages, preventing the air from entering the package once it has been opened for the first time, so that package contents can be consumed while maintaining their original characteristics for as long as possible.

DESCRIPTION OF THE INVENTION

[0008] The sealing device of the invention resolves the aforementioned drawbacks and has other advantages that are described below.

[0009] The package-sealing device according to the present invention is characterized in that it comprises a sealing element provided with an outlet, the walls of the outlet being in contact with each other, making it close.

[0010] According to a preferred embodiment, the package-sealing device according to the present invention comprises a closing element, and the sealing element is made up of a flexible sheet, being said sealing element partially attached to the closing element, such that the sealing element deforms when the closing element is removed, thus defining an outlet and closing it, when the walls of the outlet are in contact with each other.

[0011] Advantageously, said sealing element is attached to the closing element in a central area of said sealing element.

[0012] According to a preferred embodiment, said sealing element is a sheet of plastic material, specifically, a sheet of polyethylene.

[0013] Preferably, said closing element is a tab and is positioned over said sealing element.

[0014] According to an alternative embodiment, the package-sealing device according to the present invention may also comprise at least one restraint flap which retains the

outlet formed by said sealing element, being said flap or flaps advantageously resilient.

[0015] Preferably, the package-sealing device according to the present invention also comprises a lid, which, in its closed position, is placed over said closing element and said sealing element.

[0016] Advantageously, said lid is articulated with regard to a frame that can be attached to a package.

[0017] According to an alternative embodiment, the outlet of said sealing element is made of an elastomer, for example, silicone.

[0018] The package-sealing device according to the present invention avoids air from entering the package, because the sealing element prevents it from doing so. This is possible because the flexible sheet, which forms the walls of the outlet, maintains contact of the wall surfaces thus avoiding air from entering and when contents are to be removed from within the package, the flexible nature of the sheet allows the outlet to open, separating the walls of the outlet due to the passage of the product.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] For the purpose of helping to make the foregoing description more readily understandable, it is accompanied by a set of drawings that, schematically and by way of illustration and not limitation, represent an embodiment.

[0020] FIGS. 1 to 3 are perspective views of the package-sealing device according to the present invention showing the removal of the closing element and the forming of the outlet;

[0021] FIG. 4 is a perspective view of a second embodiment of the package-sealing device according to the present invention in its position of use; and

[0022] FIG. 5 is a perspective view of a third embodiment of the package-sealing device according to the present invention.

DESCRIPTION OF A PREFERRED EMBODIMENT

[0023] FIGS. 1 to 3 show a first embodiment of the sealing device according to the present invention.

[0024] As is conventional, a package 7, for example a Tetra Brik® type package, comprises an opening 8 through which the contents of the package can flow, for example, a beverage or some kind of liquid food.

[0025] According to the present invention, a closing 1 element is placed over this opening 8 such as, for example, a tab, which can be pulled for removal.

[0026] Furthermore, just below the opening 8, a sealing 2 element is positioned, with is formed of a flexible sheet, for example a sheet of plastic material, advantageously polyethylene.

[0027] This sealing 2 element is partially attached, for example in its central part, to a closing 1 element, as can particularly be seen in FIG. 2. This coupling may be performed in any suitable manner, for example, by means of heat sealing.

[0028] When the closing 1 element is removed in order to open the package for the first time, the coupling of the closing 1 and the sealing 2 elements will cause the latter to deform because of its flexible nature, defining an outlet 3, as best seen in FIG. 3.

[0029] Said outlet 3 will close automatically due to the characteristics of the sheet that forms it, for instance, due to the static electricity generated by the sheet of plastic material, making the wall surfaces contact each other, and preventing the air from entering into the package.

[0030] As can be seen in the drawings, it is also expected that the package-sealing device according to the present invention comprise a lid 5, which is preferably articulated with regard to a frame 6 attached to the package 7 around the opening 8.

[0031] Consequently, in order to use the sealing device according to the present invention, one simply has to pull on the closing 1 element, causing the forming of the outlet 3, which will close automatically preventing air from entering the package 7.

[0032] If the contents of the package 7 have to be delivered, for example a liquid, this can be achieved in a conventional manner by rotating the package until the content flows from the outlet 3, which will open automatically due to the pressure exerted by the content as it flows out of the package 7, and will then close again automatically.

[0033] Evidently, the user will not have to manipulate the sealing device in a way that is different from current use, since the sealing 2 element interacts with the closing 1 element when opening the package for the first time and later with the content of the package 7 when opening the outlet 3.

[0034] FIG. 4 also shows an alternative embodiment with regard to the one appearing in FIGS. 1 to 3. For the sake of simplicity, the same reference numbers are used to identify equivalent elements.

[0035] The only difference with regard to the previous embodiment is the presence of restraint 4 flaps whose function is to retain the outlet 3 in its upwardly oriented position, as shown in FIG. 4.

[0036] It should be noted that these restraint 4 flaps may have any suitable shape, not necessarily that shown in FIG. 4.

[0037] FIG. 5 shows a third embodiment of the package-sealing device according to the present invention. For the sake of simplicity, the same reference numbers are used to identify equivalent elements.

[0038] In this case, the outlet 3 of said sealing 2 element is not attached to the closing 1 element, which is optional. Furthermore, the outlet 3 is made of an elastomer, for example, silicone.

[0039] Thus, the outlet 3 opens automatically when pouring the contents of the package 7, as in the previous embodiments, and it will close due to the resilient charac-

teristics of the outlet 3 when the contents of the package 7 stop flowing through said outlet 3.

[0040] Despite the fact that reference has been made to a specific embodiment of the invention, it is evident for a person skilled in the art that numerous variations and changes may be made to the sealing device described, and that all the aforementioned details may be substituted by other technically equivalent ones, without detracting from the scope of protection defined by the attached claims.

1. A package-sealing device, comprising a sealing element provided with an outlet, the walls of the outlet being in contact with each other, making it close.

2. The package-sealing device according to claim 1, further comprising a closing element, the sealing element being made up of a flexible sheet, being said sealing element partially attached to the closing element, such that the sealing element deforms when the closing element is removed, thus defining an outlet and making it close when the walls of the outlet are in contact with each other.

3. The package-sealing device according to claim 2, wherein said sealing element is attached to the closing element in a central area of said sealing element.

4. The package-sealing device according to claim 1, wherein said sealing element is a sheet of plastic material.

5. The package-sealing device according to claim 4, wherein said sealing element is a sheet of polyethylene.

6. The package-sealing device according to claim 2, wherein said closing element is a tab.

7. The package-sealing device according to claim 2, wherein said closing element is positioned over said sealing element.

8. The package sealing device according to claim 2, further comprising at least one restraint flap which retains the outlet formed by said sealing element.

9. The package-sealing device according to claim 8, wherein said restraint flap or flaps are resilient.

10. The package-sealing device according claim 1, further comprising a lid, which in its closed position is placed over said closing element and said sealing element.

11. The package-sealing device according to claim 10, wherein said lid is articulated with regard to a frame that can be attached to a package.

12. The package-sealing device according to claim 1, wherein the outlet of said sealing element is made of an elastomer.

13. The package-sealing device according to claim 1, wherein the outlet of said sealing element is made of silicone.

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