PACKAGING CONSISTING OF A TUB AND A LID, packaging of the type composed of a tub (1) and lid (2) set, of any format, manufactured in appropriate plastic material through the processes of thermoforming, injection, vacuum forming, or similar, and whose respective borders (3) and (4) present the same inverted "U" section, and are fitted to each other, border (3) and (4), said borders being provided with corresponding rims (5) and (6), capable of being united permanently, resulting in a seal, being that on the vertical wall (4a) of the border (4) of the lid (2), is anticipated a perforated line (7) that when broken promotes the opening of the packaging, as well as giving evidence of its tampering.
Description

FIELD OF THE INVENTION

[0001] The current invention patent involves a packaging improvement composed of a lid and tub set manufactured in rigid plastic and obtained by the processes of Thermoforming, Injection Molding, Vacuum Forming, or other, being that the said packaging is mainly for the packaging of food products.

BACKGROUND OF THE INVENTION

[0002] As a matter of common knowledge, said packaging must present a type of closure that protects the product within, providing total efficiency and safety, meaning that the closure must be tamper proof and also capable of showing evidence of tampering at the point of sale. Additionally, it is desirable that after the packaging is open by the consumer, the lid be re-utilized to re-close the packaging while the product inside is being consumed.

[0003] There are several closure systems available in the market and of the packaging made by injection molding, the most widely used consists of a pre-established cutting line placed along the vertical external wing of the lid which delimits a detachable rim and where an element for the coupling of the lid over the mouth or aperture of the tub is located. However, in practice this type of closure is inefficient to prevent tampering because potential violators, if careful, can remove the lid without breaking the seal and then close it again.

[0004] In thermoformed packaging, such as margarine tubs, there are several closing systems for the packaging, with and without seals.

[0005] An example of closure without the use of seals is known as "cover leaf", consisting of the use of a laminate placed directly over the product surface and the simple fitting of the lid on the tub. This system, not being a seal as such, does not prevent or reveal an eventual violation of the packaging.

[0006] Another closing system for thermoformed packaging consists of a thermoformed seal over the upper rim of the tub and a subsequent fitting of the lid. This seal, because it provides a sealing of the packaging, protects the product and denounces tampering; however, the opening of this seal is not practical, requiring in some cases, that some type of cutting instrument be used. Moreover, the final cost of the packaging is higher because it uses the closure and an over-lid, and requires additional equipment to seal the closure to the tub.

[0007] A third known system for the closing of this type of packaging, which also provides sealing, consists of the use of a heat applied contracting band to the rim of the lid and extending to the superior portion of the tub. This seal features a transversal perforated line capable of being broken, which is an easy operation for the consumer and which is also a tampering indicator. However, it has been demonstrated in practice that this closure is inefficient since, when it is not shrunken properly and if a small amount of pressure is exerted from bottom to top on the rim of the lid, it will open along with the unbroken seal and it can be subsequently repositioned.

[0008] And finally, another closure sealing system for thermoformed packaging consists of a narrow detachable horizontal strip, placed along the vertical external rim of the lid, and on whose internal face is positioned the coupling element of the lid to the border of the body of the package; said detachable strip is delimited by a pair of surrounding cutting lines positioned on the vertical rim of the lid, and is provided with a projecting tab that constitutes the catching element that allows the user to pull the strip out and open the packaging.

[0009] The above sealing system is completely efficacious regarding the protection of the product, the inviolability and the indication of violation of the packaging, besides being easy to open by consumers. However, after the first opening of the packaging, what is left of the vertical rim of the lid is a small, narrow piece, resulting in an unstable fitting of the lid over the body of the packaging. Moreover, the final visual appearance of the lid does not please consumers since after the detachable portion is removed; one part of the lid remains missing.

SUMMARY OF THE INVENTION

[0010] As an attempt to solve these problems simply, at high efficiency and especially at low cost, the applicant developed the present improvement of the packaging type which is constituted of a lid/tub set, and which can be presented in any form (round, square, rectangular, oval, hexagonal, etc.), made of plastic material (PP, PS, PET, PE, PVC or similar), and obtained by thermoforming, injection, vacuum forming or similar means.

[0011] According to the aforementioned improvement, the upper border of the tub of the inverted "U" section, as well as the border of the lid of the same section, which is perfectly able to fit to the first, now present respective external, horizontal and surrounding rim, and the rim of the tub presents a small interrupted section while the rim of the lid presents an ear tab, which, when the packaging is closed, should coincide with the interrupted section of the tub. These rims can be fixed one to the other by heat sealing or ultra-sound, thus providing a hermetic sealing of the packaging.

[0012] Additionally, and as the principal element of this innovation, a perforated line placed along the external vertical wall of the border of the lid has been foreseen, which begins on one lateral side of the ear tab and ends on the opposite side, and this line can present a short interrupted section diametrically opposite the said ear tab, configuring thusly the "hinge" of the lid when opened.

[0013] In this manner, after the filling of the product in the tub, the packaging is closed by fixing the lid of the tub in such a way as to coincide the ear tab of the first with the interrupted section of the flap of the second. This
done, the tab of the lid and the tub are united together by heat sealing, ultra-sound, or other appropriate means, resulting in a hermetic closing of the packaging set.

[0014] Opening the set can only be done by pulling the existing ear tab on the rim of the lid, thus beginning the separation, from front to back, along the existing perforated line on the lateral external wall of the border of the same lid. The opening of the lid can be total or not, in the case of the "hinge".

[0015] Thus, this improvement has resulted in a packaging set with a totally hermetic, absolutely inviolable, and tamper-proof closing system in which the separation of the perforated line of the lid is totally and easily evidenced.

[0016] The lid, once repositioned, has good closure because of the fact that it presents interference of its internal dimension with the internal dimension of the tub. Moreover, since the section positioned below the perforated line of the border of the lid remains fixed to the rim of the tub, or in other words, no piece of the border of the lid is removed when it is repositioned, the resulting appearance is practically the same as when the packaging was sealed shut, and is thus more appealing to consumers.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] A more complete appreciation of the present invention and many of the attendant advantages thereof will be readily understood by reference of the following detailed description when taken in conjunction with the accompanying drawings, in which:

Figures 1 and 2 show a round-shaped tub/lid set in perspective, with Figure 1 showing an exploded perspective of the said set.

Figures 3 and 4 show a rectangular shaped tub/lid set in perspective, with Figure 3 showing an exploded perspective of the said set.

Figure 5 shows a frontal perspective of the tub/lid set in a closed position.

Figure 5a shows an amplified perspective of the detail indicated in Figure 5.

Figure 6 illustrates in frontal perspective, the set tub/lid in open position, after the breaking of the perforated line.

Figure 6a depicts, in exploded perspective, the detail indicated in Fig. 6.

Figure 7 shows the tub/lid set in a closed position from a posterior perspective.

Figure 7a shows the detail indicated in Figure 7 in an amplified perspective, and which configures the "hinge" of the lid and tub, after the perforated line has been broken and consequently the packaging opened.

OBJECT OF THE INVENTION

[0018] The objective of the present invention patent is a "PACKAGING CONSISTING OF A TUB AND A LID", said packaging composed of a tub (1) and a lid (2), of whatever format (round, square, rectangular, oval, hexagonal, etc.), made from appropriate plastic material (PP, PS, PET, PE, PVC or similar), and by means of the processes of thermoforming, injection, vacuum forming, or similar, being that the upper border (3) of the tub (1), as well as the contour border (4) of the lid (2), present the same section of an inverted "U", and which can be fitted into each other to close the packaging.

[0019] In accordance with the present improvement, from the free extremity of the external vertical wall (3a) of the border (3) of the tub (1) is projected at a right angle (orthogonally outward an encircling rim (5) having a short interrupted section (5a).

[0020] Likewise, from the free extremity of the vertical external border wall (4 and 4a) of the lid (2), an encircling rim (6) projects orthogonallywards, and said rim has an ear tab (6a), which can coincide with the interrupted portion (5a) of the rim (5) of the tub (1) when the lid (2) is fitted in. This fitting causes the overlapping of the rim of the lid (6) on the rim of the tub (5), which subsequently are united permanently by heat sealing, by ultrasound or by any other suitable procedure, being that said union configures a seal that guarantees the hermetic closing of the packaging.

[0021] Additionally, on the vertical wall (4a) of the lid (2), there is a longitudinal perforated line (7), placed along of the whole wall (4a), beginning next to one side of the lateral ear tab (6a) of the rim (6) and ending next to its lateral opposite side being that in one main design option, the said perforated line (7) displays a short interrupted section (7a), diametrically opposite the ear tab (6a), and which functions as the "hinge" for the opened lid (2).

[0022] Thus, after filling the product in the tub (1), the lid (2) is fitted on it in such way as to juxtapose the ear tab (6a) of the rim (6) of the first with interrupted portion (5a) of the rim (5) of the second. Afterwards, the rim (6) of the lid (2) and the rim (5) of tub (1) are united through hot sealing, by ultrasound or by any other appropriate procedure, resulting in the hermetic closure of the packaging set.

[0023] And the opening of the packaging is possible only through the breaking of the perforated line (7) anticipated on the external lateral encircling border (4) of the lid (2), being that said breaking occurs from front to back and gradually, initiated through upward traction of the ear tab (6a) from the lid (2) and finalizing with the traction of the lid itself which is then opened.

[0024] Under the design option where the interrupted portion (7a) of the perforated line (7) is considered, and that functions as the hinge for lid, the lid (2) breaks away partially from the tub (1) since the said lid stays connected to the tub by means of the hinge.

[0025] Under a different design option where the per-
forated line (7) is continuous, the lid (2) separates completely from the tub (1).

**[0026]** However, in both options, the lid (2) is reusable for closing the packaging.

**[0027]** Thus, this improvement resulted in a packaging set with a totally hermetic closure system that is absolutely tamper proof and capable of indicating potential tampering, since the tearing of the perforated line (7) of the lid (2) is readily visible.

### Claims

1. **1st)** "PACKAGING CONSISTING OF A TUB AND A LID", packaging of the type made up of a tub (1) and lid (2) set, of whatever format (round, square, rectangular, oval, hexagonal, etc.), made from appropriate plastic material (PP, PS, PET, PE, PVC or similar), by the processes of thermoforming, injection, vacuum forming or similar, being that the upper border (3) of the tub (1), as well as the contour border (4) of the lid (2), present the same section of an inverted "U", and which can be fitted into each other to close the packaging, **characterized by** the fact that from the free extremity of the vertical external wall (3a) of the border (3) of the tub (1) is projected orthogonally outward, a surrounding rim (5) having a short interrupted section (5a), and by the fact that, from the free extremity of the vertical external wall (4a) of the border (4) of the lid (2), is also projected orthogonally outward a surrounding rim (6) having a tab (6a) which forms a pull tab and which coincides with the interrupted section (5a) of the tub (1), when the lid (2) is fitted to it, and said fitting allows the juxtaposition of rim (6) and rim (5), which subsequently are joined permanently to each other by heat sealing or by ultrasound or by any appropriate method, thus forming a hermetic closing seal: additionally, on the vertical wall (4a) of the border (4) on the lid (2), is anticipated a longitudinal perforated line (7), laid out along the entire wall (4a), starting next to one of the lateral sides of the ear tab (6a) of the rim (6), and ending on the opposite side of the ear tab.

2. **2nd)** "PACKAGING CONSISTING OF A TUB AND A LID", in accordance with claim 1, and under a preferred configuration, **characterized by** the fact that the perforated line (7) of the external vertical border (4a) of the border (4) of the lid (2) possesses a short interrupted section (7a), diametrically opposite the ear tab (6a) of the rim (6) of the lid (2), configuring a hinge.

3. **3rd)** "PACKAGING CONSISTING OF A TUB AND A LID", in accordance with claim 1, and under another configuration, **characterized by** the fact that the perforated line (7) is continuous.

4. **4th)** "PACKAGING CONSISTING OF A TUB AND A LID", in accordance with claim 1, **characterized by** the fact that the union between rim (6) of the lid (2) and the rim (5) of the tub (1) is achieved through heat sealing, by ultrasound, or any other appropriate means, resulting in the hermetic closure of the packaging.

5. **5th)** "PACKAGING CONSISTING OF A TUB AND A LID", in accordance with claim 1, **characterized by** the fact that lid (2) is re-usable.

6. **6th)** "PACKAGING CONSISTING OF A TUB AND A LID", in accordance with claim 1, **characterized by** the fact that the perforated line (7) of the lid (2), when broken, constitutes an element indicative of tampering.
## DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document with indication, where appropriate, of relevant passages</th>
<th>Relevant to claim</th>
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The present search report has been drawn up for all claims

Place of search: The Hague
Date of completion of the search: 25 March 2009
Examiner: Zanghi, Amedeo

### CATEGORY OF CITED DOCUMENTS

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