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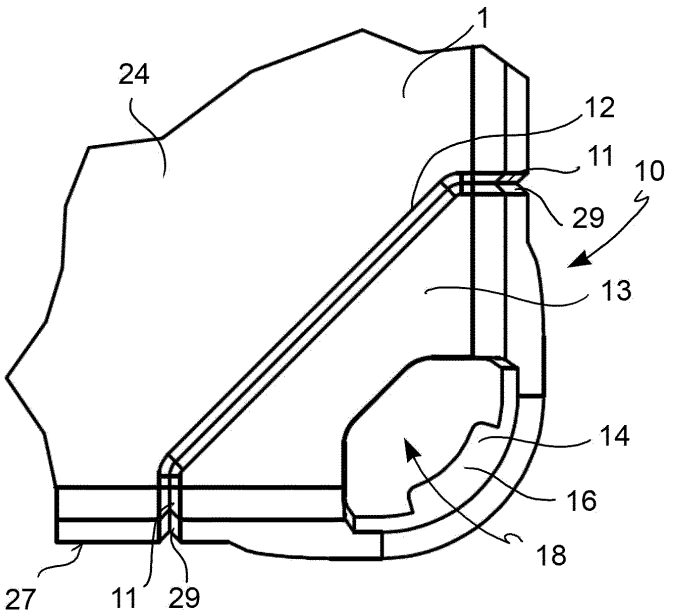
(54) **CONTAINER COVER**

(57) The object of the present invention is a container cover (1), or cover (1), in which said container further comprises a receptacle (2) comprising side walls (7) for delimiting at least one receptacle cavity (9) having at least one lip (8) projecting opposite to said receptacle cavity (9), said cover (1) being suitable for covering said receptacle cavity (9) by resting on said at least one lip (8) to close and seal said receptacle cavity (9); and wherein said cover (1) comprises at least one safety seal device (10) which is suitable for indicating the occurrence of the first opening of the container and is suitable for showing the occurrence of the tampering with the container; and wherein said safety seal device (10) comprises at least one frangible element (11) and at least one hinge element (12) which are structurally connected so as to define a slice (13) of said cover (1); and in which said at least one safety seal device (10) comprises a hooking tooth (14) which is suitable for projecting cantilevered from said cover (1) towards at least one of said side walls (7) of said receptacle (2) when said cover (1) is mounted on said receptacle (2), and in which said at least one hooking tooth (14) is suitable for coupling as an undercut against a lip face (15) of said lip (8) facing opposite to said cover (1) so as to snap fit said cover (1) to said receptacle (2) to close said receptacle cavity (9); and in which said at least one hooking tooth (14) is substantially unsuitable for the flexural work.

FIG. 5



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Description

. Field of the invention

[0001] A container cover is the object of the invention.

[0002] In particular, the present invention relates to a container cover comprising at least one safety seal device which is suitable for indicating the occurrence of the first opening of the container, and also to a method of first opening a container comprising said cover.

[0003] For example, a container cover according to one aspect of the invention is a container cover also for degradable items such as, by way of non-limiting example, foodstuffs such as ice-cream, bakery or deli items.

. Background art

[0004] Known containers which are suitable for containing also degradable items such as e.g., foodstuffs, generally comprise a various shaped receptacle, such as for example a tub or a tray, in/on which the item is housed, and a cover, in which connection means perform a shape coupling between receptacle and cover along a peripheral contact path. The receptacle indeed generally comprises a projection which extends along at least one portion of the perimeter thereof and which is housed in a corresponding peripheral seat comprised in the cover, which substantially is complementary to the projection of the receptacle such as to avoid the release of said projection from said seat in order to avoid the accidental opening of the container when the container is in the closed arrangement.

[0005] The cover also may be provided with precut or weakened portions so as to facilitate the breakage thereof and the opening of the container, thus allowing the access to the product.

[0006] Known containers comprise devices which are suitable for indicating the occurrence of the first opening of the container so as to immediately inform the consumer if the container has already been opened or if it is still in its original sealed state.

[0007] For example, document WO-A-2014-099368 shows a container comprising a tab of material connecting a peripheral edge of the receptacle with the cover and suitable for being removed by tearing during the first opening of the container. Documents US-A-2010-089922, EP-A-0121201 and DE-A-4418935 show solutions similar to the preceding one.

[0008] However, such solutions impose sacrificing a tab or strip of material. Moreover, such solutions are exclusively functional on predetermined receptacle and cover pairs, resulting in the related molds also being dedicated and therefore usable for making one product alone.

[0009] For example, document WO-A-2004-013010 shows a solution of cover for a standard cylindrical container, in which said cover comprises a safety seal comprising a flexible tab which rests against a portion of the cylindrical receptacle wall so as to avoid the first opening of the container unless the frangible bridges of the safety seal placed on a circular portion of the cover are broken.

[0010] Although it is advantageous from certain viewpoints, such a solution does not wholly resolve the problem, firstly because it is not compatible with shapes of receptacle which are even slightly different from the standard cylindrical one, indeed even the provision of possible lips or spouts projecting from an edge portion of the receptacle would make the cover disclosed in WO-A-2004-013010 inapplicable. For example, certain known receptacles for food do not necessarily have a cylindrical shape, such as in the non-limiting example of certain ice-cream tubs, thus making the above-mentioned solution unsuitable. Moreover, although such a known solution of safety seal is suitable for indicating the occurrence of the first opening of the container, it does not allow a sturdy re-closure of the container because the flexible tab is unsuitable for coupling the cover to the receptacle once the safety seal bridges have been broken.

[0011] Further known solutions at least partly ascribable to the above-described types are shown in documents FR-A-2921909, EP-A-0573401 and US-A-5538154.

[0012] Thus, the need is felt to provide a solution of container cover comprising at least one safety seal device which is suitable for receptacles which are not necessarily cylindrical in shape, without resulting in decreased versatility with respect to known solutions.

[0013] Likewise, the need is felt to provide a container cover comprising a safety seal device which is sturdy while being simple to manufacture.

[0014] Moreover, the need is felt to provide a container cover which is suitable for indicating the occurrence of the first opening of the container and simultaneously suitable for allowing successive closures of the container.

[0015] The need simultaneously is felt to provide a method of first opening a container which is effective and intuitive for the user of the container.

. Solution

[0016] It is an object of the present invention to obviate the drawbacks of the prior art and to provide a solution to the needs mentioned hereto.

[0017] It is a further object of the present invention to provide a container cover which comprises at least one safety seal device which is integral with said cover and is suitable for indicating the occurrence of the first opening of the container, which is simpler to manufacture and has improved versatility and sturdiness with respect to known solutions.

[0018] It is a further particular object of the present invention to provide a container cover which comprises at least one safety seal device which is suitable for indicating the occurrence of the first opening of the container, and is simultaneously suitable for allowing successive

closures of the container.

[0019] This and other objects are achieved with a cover according to claim **1,** and also with a method according to claim **15.**

[0020] Certain advantageous embodiments are the object of the dependent claims.

[0021] According to one aspect of the invention, a container cover is suitable for covering a receptacle cavity of an associable receptacle by resting on at least one lip of said receptacle to close and seal said receptacle cavity.

[0022] According to one aspect of the invention, a container cover is associable with a variety of receptacles having predetermined features in terms of shape and size.

[0023] According to one aspect of the invention, said cover comprises at least one safety seal device which is suitable for indicating the occurrence of the first opening of the container and is suitable for showing the occurrence of the tampering with the container.

[0024] According to one aspect of the invention, said at least one safety seal device comprises at least one frangible element and at least one hinge element which are structurally connected so as to define a slice of said cover.

[0025] According to one aspect of the invention, said at least one safety seal device comprises a hooking tooth which is suitable for projecting cantilevered from said cover towards at least one of said side walls of said receptacle when said cover is mounted on said receptacle, and is suitable for coupling as an undercut against a lip face of said lip facing opposite to said cover so as to snap fit said cover to said receptacle to close said receptacle cavity.

[0026] According to one aspect of the invention, said frangible element has such a shape as to be more brittle with respect to said hooking tooth, so that said safety seal device indicates the occurrence of the first opening of the container by means of the breakage of said at least one frangible element.

[0027] According to one aspect of the invention, said cover has a substantially square plan and comprises four safety seal devices placed on four vertexes of said substantially square.

[0028] According to one aspect of the invention, said cover is suitable for closing and sealing a receptacle for degradable items, such as e.g. foodstuffs, such as e.g. ice-cream, bakery or deli items.

[0029] According to one aspect of the invention, said cover is suitable for closing and sealing a receptacle for degradable items, such as the non-limiting example of mechanical components.

. Figures

[0030] Further features and advantages of the cover and method according to the invention will be apparent from the description provided below of preferred embodiments thereof, given by way of non-limiting example, with reference to the accompanying drawings, in which:

- figure 1 is a plan view of the outer face of a container cover according to one embodiment of the invention;
- figure 2 is a sectional view according to the line II-II in figure 1;
- figure 3 is a vertical raised view according to arrow III in figure 1;
- figure 4 is a plan view of the inner face of a container cover according to one embodiment of the invention;
- figure 5 is an enlargement of the portion of cover indicated with V in figure 1, and comprising a safety seal device;
- figures 5bis and 5ter are plan views of a safety seal device and a portion of cover according to certain embodiment variants of the invention;
- figure 6 is a diagrammatical sectional view according to the line VI-VI in figure 1;
- figure 7 is an axonometric view of a safety seal device and a portion of cover according to one embodiment of the invention;
- figures 7bis and 7ter are axonometric views of a safety seal device and a portion of cover according to certain embodiment variants of the invention;
- figure 8 is an enlargement of the portion of cover indicated with VIII in figure 4, and comprising a safety seal device;
- figures 9, 10 and 11 are axonometric views showing certain steps of a method of first opening a cover comprising at least one safety seal device according to a possible operating method;
- figure 12 is an axonometric view showing a cover comprising a safety seal device according to one embodiment of the invention, and an associable receptacle;
- figures 13 and 14 are axonometric views showing certain steps of a method of first closure of a container cover comprising at least one safety seal device according to a possible operating method;
- figures 15, 16 and 17 are diagrammatical sectional views showing certain details of two stacked container covers according to certain embodiments of the invention;
- figure 18 is a diagrammatical sectional view showing a cover detail according to one embodiment, and a portion of an associable receptacle;
- figure 19 is an axonometric view of a cover according to one embodiment;
- figure 20 is a plan view of the outer face of a cover according to one embodiment;
- figure 21 is a vertical raised view according to arrow XXI in figure 20;
- figure 22 is an enlarged view of the portion of cover indicated with XXII in figure 20, and comprising a safety seal device;
- figure 23 is an axonometric view of a portion of the inner face of a cover comprising an auxiliary safety

device;

- figure 24 is a plan view of a portion of the inner face of a cover according to the viewpoint indicated by arrow XXIV in figure 23;
- figure 25 is a diagrammatical sectional view according to the line indicated by arrows XXV-XXV in figure 24.

. Description of some preferred embodiments

[0031] According to a general embodiment, a container cover 1, or cover 1, which is suitable for closing a receptacle to form a container, comprises at least one safety seal device 10 suitable for indicating the occurrence of the first opening of the container and is suitable for showing the occurrence of the tampering with the container.

[0032] The term "first opening of the container", or "first opening", means the event, or operation, which causes the first (in chronological order) opening of the container and which is carried out by means of removing the container cover, when the safety seal device is still intact. The term "first closure of the container", or "first closure", means the event, or operation, which causes the first (in chronological order) closure of the container and which is carried out by means of mounting said cover on an associable receptacle. Said first closure temporally precedes said first opening. According to one embodiment, said first closure is a step of production while said first opening is an operation carried out by the user of the container.

[0033] Said container comprises a receptacle 2 associable with said cover 1 and comprising side walls 7 for delimiting at least one receptacle cavity 9, said side walls comprising at least one lip 8 which projects opposite to said receptacle cavity 9. In other words, said lip 8 surrounds the access hole to said receptacle cavity 9 and projects cantilevered with respect to said side walls 7 towards the outside of said receptacle 2.

[0034] Said cover 1 is suitable for covering said receptacle cavity 9 by resting on said at least one lip 8 to close and seal said receptacle cavity 9.

[0035] According to one embodiment, said cover 1 is suitable for closing and sealing said receptacle cavity 9.

[0036] According to one embodiment, said cover 1 comprises at least one outer edge wall 3, which defines with an edge thereof, perimeter 27 of said cover 1. According to one embodiment, said outer edge wall 3 extends surrounding the whole cover 1.

[0037] Said safety seal device 10 comprises at least one frangible element 11 and at least one hinge element 12 which are structurally connected so as to delimit a slice 13 of said cover 1. In other words, said at least one frangible element 11 and said hinge element 12 are structurally connected to form a continuous path which connects two separate portions of said perimeter 27 of said cover 1.

[0038] According to one embodiment, said at least one frangible element 11 and said at least one hinge element 12 have substantially linear extension and are structurally connected to form a path. For example, said linear extension may be an at least partly curved path, or an at least partly straight path, or an at least partly broken line path, or at least partly straight line path.

[0039] According to one embodiment, said safety seal device 10 comprises two frangible elements 11 which extend at opposite ends of said hinge element 12.

[0040] According to one embodiment, said two frangible elements 11 are both placed on said outer edge wall 3. In other words, said outer edge wall 3 comprises said at least two frangible elements 11.

[0041] Said at least one safety seal device 10 comprises at least one hooking tooth 14 which is suitable for projecting cantilevered from said cover 1 towards said lip 8 of said receptacle 2 when said cover 1 is mounted on said receptacle 2.

[0042] Said at least one hooking tooth 14 is suitable for coupling as an undercut against a lip face 15 of said lip 8 facing opposite to said cover 1, so as to snap fit said cover 1 to said receptacle 2 to close said receptacle cavity 9.

[0043] Advantageously, said at least one hooking tooth 14 substantially is unsuitable for flexural work. In other words, the structure of said hooking tooth 14 makes it unsuitable for being elastically deformed with respect to slice 13 and said slice has such a structure so as to be elastically deformed.

[0044] According to one embodiment, said at least one hooking tooth 14 has a thickness such as to make it unsuitable for bending.

[0045] According to one embodiment, said slice 13 comprises at least one window 18 which is suitable for making said slice 13 elastically deformable so as to allow the snap fitting of said cover 1 to said receptacle 2.

[0046] The provision of said window 18 increases the flexibility of said slice 13 by removing a quantity of material which would limit the elastic bending and tensile deformation of said slice 13, and allows said slice 13 to be elastically deformed during the first closure of the container, thus avoiding said hooking tooth 14 from obstructing the first closure. Indeed, said slice 13 extends elastically during the first closure so as to allow said hooking tooth 14 to couple as an undercut against said lip wall 15 facing opposite to said cover 1.

[0047] The provision of such a safety seal device 10 allows the snap fitting functions carried out by the hooking tooth 14 and the structural flexibility functions carried out by the flexible slice 13 not to be coupled. In other words, the snap fitting and structural flexibility functions are made independent from each other since they are carried out by separate structural elements of the safety seal device 10. This gives the undercut coupling significant resistance and makes the cover 1 suitable for closing and possibly sealing the associable receptacle 2, also for closure operations of the container following the first closure.

[0048] According to one embodiment, said safety seal device 10 is suitable for closing said associable receptacle 2, while cover 1 comprises further means which are suitable for sealing said associable receptacle 2. According to one embodiment, said safety seal device 10 is suitable for closing and sealing said associable receptacle 2.

[0049] According to one embodiment, said slice 13 comprises flexible slice arms 30 surrounding said window 18.

[0050] According to one embodiment, said at least one hooking tooth 14 comprises at least one abutment surface 16 which is suitable for facing said lip face 15, and at least one introduction slide 17 which is inclined so as to slide on a portion of said at least one lip 8 and is suitable for causing the elastic deformation of said slice 13 to allow the first closure of the container, thus avoiding to cause the breakage of said at least one frangible element 11.

[0051] The provision of said introduction slide 17 guides the elastic deformation of said slice 13 so that the first closure of container occurs without causing the breakage of said at least one frangible element 11.

[0052] The provision of such a hooking tooth 14 comprising said introduction slide 17 makes said hooking tooth 14 suitable for causing the orientation of the forces exchanged between cover 1 and receptacle 2 during the first closure of the container, and also during the course of the first opening of the container, and also when the cover is mounted snap fitted to the receptacle. For example, during the first closure of the container, the thrust applied on cover 1 and directed towards receptacle 2 due to said introduction slide 17 at least partly results in a drawing of said at least one slice 13 so as to allow said abutment face 16 of said hooking tooth 14 to couple as an undercut against said lip face 15 of said receptacle 2.

[0053] According to one embodiment, said introduction slide 17 is tapered so as to favorably guide the mounting of said cover 1 onto an associable receptacle 2.

[0054] According to one embodiment, said at least one abutment surface 16 is substantially flat and substantially oriented parallel to said lip face 16 of a receptacle 2 which is associable with said cover 1.

[0055] This allows said hooking tooth 14 to exert a coupling force having a component parallel to the direction of removal of cover 1 from receptacle 2 during the opening operation which is substantially equal to the coupling force, thus minimizing the lateral component of the coupling force. This provides improved coupling effectiveness and thus allows container closures to be carried out following the first opening.

[0056] According to one embodiment, said frangible element 11 is structurally identical to said hinge element 12 and the breakage of said frangible element 11 is exclusively caused by the positioning of said frangible element 11 in the body of said cover 1.

[0057] According to one embodiment, said frangible element 11 has such a shape as to be more brittle with respect to said hooking tooth 14, so that said safety seal device 10 indicates the occurrence of the first opening of the container by means of the breakage of said at least one frangible element 11.

[0058] According to one embodiment, said frangible element 11 has such a shape as to be more brittle with respect to said hooking tooth 14, so that said safety seal device 10 indicates the occurrence of the first opening of the container by means of the breakage of said at least one frangible element 11.

[0059] According to one embodiment, said slice 13 comprises a tab 19 which projects substantially cantilevered from said cover 10 to form a gripping element, to obtain the opening of said cover 1.

[0060] According to one embodiment, said tab 19 is lifted to obtain the first opening of said cover 1.

[0061] According to one embodiment, said tab 19 is suitable for uncoupling said hooking tooth 14 by tearing said at least one frangible element.

[0062] The provision of such a tab 19 allows said at least one frangible element 11 to be torn by applying an incremental drawing force to said frangible element, which initially deforms at least a portion of said frangible element 11 by extending it, and then, once the breakage load of the frangible element 11 is exceeded, causes the tearing breakage thereof.

[0063] According to one embodiment, said frangible element 11 comprises a lead-in portion to tearing 29 which delimits a gap obtained in the cover perimeter 27. Thereby, the propagation is promoted of the tearing in the frangible element 11.

[0064] According to one embodiment, said frangible element 11 comprises at least one connection bridge which thickness is less than the thickness of the hooking tooth 14. Thereby, said at least one frangible element 11 is made more brittle than said hooking tooth 14.

[0065] According to one embodiment, said hinge element 12 is unsuitable for breaking so as to allow said slice 13 to remain in one piece with said cover 1 even when said frangible element 11 has been broken.

[0066] According to one embodiment, by manipulating said tab 19, said frangible element 11 is biased and said hinge element 12 is flexurally biased.

[0067] According to one embodiment, said hinge element 12 is more resistant than said frangible element 11.

[0068] According to one embodiment, said hinge element 12 has a greater thickness than said frangible element 11. Thereby, said hinge element is more resistant than said frangible element 11.

[0069] According to one embodiment, said hinge element 12 has a substantially rectilinear extension and said at least one slice 13, after the first opening of the container, is suitable for rotating around a hinge axis comprised in, or substantially coinciding with said hinge element 12.

[0070] According to one embodiment, said tab 19 allows said slice 13 to be folded over said hinge element 12, the same way as a dog-ear of a notebook.

[0071] According to one embodiment, said hinge ele-

ment 12 has a substantially rectilinear extension so that said slice 13 has a substantially triangular plan.

[0072] According to one embodiment, said tab 19 is also suitable for carrying out opening operations of the cover following the first opening.

[0073] According to one embodiment, said tab 19 is shaped so that by lifting said tab 19, the rotation is caused of said slice 13 around said hinge axis.

[0074] According to one embodiment, said tab 19 is shaped so as to increase the lever arm of said slice 13 so that by lifting said tab 19, the tearing is caused of said frangible element 11.

[0075] According to one embodiment, said tab 19 is shaped so as to allow the elastic deformation of said slice 13 to carry out the first closure of the container, thus avoiding the deformation of said hooking tooth 14.

[0076] According to one embodiment, said outer edge wall 3 is a strip of material which is integral with said cover 1, which surrounds said cover.

[0077] According to one embodiment, said outer edge wall 3 comprises at least one first side portion 4 and at least one second side portion 5 having substantially rectilinear extension, in which said first side portion 4 is not parallel to said second side portion 5, so that said first side portion 4 and said second side portion 5, or extensions thereof, define at least one corner portion 6 of said cover 1.

[0078] According to one embodiment, said corner portion 6 comprises said at least one safety seal device 10.

[0079] According to one embodiment, when said hooking tooth 14 is coupled as an undercut against said lip face 15, it causes a residual tensile stress of at least one portion of said slice 13.

[0080] According to one embodiment, said cover 1 is suitable for carrying out closures of said container following said first opening, by means of the snap fitting of said hooking tooth 14 against said lip face 15 of an associable receptacle 2.

[0081] According to one embodiment, when said hooking tooth 14 is coupled as an undercut against said lip face 15, it causes a residual tensile stress of at least one portion of said cover 1 so as to provide a constant load which keeps said cover 1 closed and sealed also for closures following the first opening.

[0082] According to one embodiment, said cover 1 comprises at least one structural reinforcing element 21 which is suitable for stiffening said cover 1, said structural reinforcing element 21 extends over at least one portion of said cover 1.

[0083] According to one embodiment, said structural reinforcing element 21 extends at least partly along a direction which has one of the greatest tensile stresses when said cover 1 closes said receptacle 2.

[0084] According to one embodiment, said structural reinforcing element 21 comprises at least one projection or at least one portion which has increased thickness with respect to the rest of cover 1.

[0085] According to one embodiment, said outer edge wall 3 comprises said at least one structural reinforcing element 21. According to one embodiment, said at least one structural reinforcing element 21 substantially has a shape of a portion of a cylinder.

[0086] According to one embodiment, the distance between said at least one structural reinforcing element 21 and a safety seal 10 is less than the distance between two structural reinforcing elements 21. Thereby, the portion of cover 1 close to said safety seal 10 comprising said flexible slice arms 30, is reinforced.

[0087] According to one embodiment, said cover 1 is made of a plastic material which is suitable for being processed by injection molding.

[0088] According to one embodiment, said cover 1 is made by injection molding.

[0089] According to one embodiment, said cover 1 is made in a single piece.

[0090] According to one embodiment, said cover 1 comprises a connector 28 which extends between the outer edge wall 3 and said outer face 24. For example, said connector 28 may comprise a step.

[0091] According to one embodiment, said connector 28 comprises a portion of said hinge element 12.

[0092] According to one embodiment, said connector 28 comprises a portion of said frangible element 11.

[0093] As shown for example in figures 15, 16 and 17, according to one embodiment, said cover 1 is shaped so as to allow said plurality of covers 1 to be stacked on one another. This simplifies the storage of said plurality of covers 1.

[0094] According to one embodiment, said cover 1 comprises four safety seal devices 10.

[0095] According to one embodiment, said four safety seal devices 10 are placed at four vertexes of a quadrilateral which defines the shape of said cover 1.

[0096] According to one embodiment, said cover 1 has a substantially square plan and said four safety seal devices 10 are placed on four vertexes of said substantially square plan.

[0097] According to one embodiment, said cover 1 comprises a plurality of safety seal devices 10.

[0098] According to one embodiment, said cover 1 has a substantially polygonal plan and said plurality of safety seal devices 10 are placed on vertexes of said polygonal plan.

[0099] According to one embodiment, said cover 1 has a substantially polygonal plan and said plurality of safety seal devices 10 is placed on opposite, not adjacent, vertexes of said polygonal plan.

[0100] According to one embodiment, said cover 1 has a substantially circular plan comprising at least one spout and said at least one safety seal device 10 is placed on said spout.

[0101] The provision of such a safety seal device 10 allows the user of the container to be informed if the container has already been opened, by visually inspecting the cover. This makes such a container suitable for containing also degradable items and for providing informa-

tion on the state of conservation thereof, such as e.g. organic items, such as e.g. foodstuffs, such as e.g. ice-cream, bakery or deli items.

[0102] According to one embodiment, said cover 1 is suitable for isolating the receptacle cavity 9 from the outer environment together with cover 1 and receptacle 2 which is associable with said cover 1.

[0103] According to one embodiment, said receptacle 2 further comprises a bottom wall, which together with said side walls 7, defines said receptacle cavity 9.

[0104] According to one embodiment, said cover 1 comprises at least one inner face 23 which is suitable for facing said receptacle cavity 9, and at least one outer face 24 facing opposite to said inner face 23.

[0105] According to one embodiment, said hooking tooth 14, with said abutment face 16 thereof, snap fits against said lip face 15 so as to prevent the accidental related movement between cover 1 and receptacle 2.

[0106] According to one embodiment, the distance between said abutment face 16 of said hooking tooth 14 and said inner face 23 of said cover 1 is less than the thickness of said lip 8 of said receptacle 2.

[0107] Thereby, is increased the force of coupling of said cover 1 to said receptacle 2 which is associable with said cover 1.

[0108] According to one embodiment, said cover 1 comprises a centering and sealing rib 22, which projects from said inner face 23 for at least one portion of cover so as to close and seal said receptacle 2.

[0109] The provision of said centering and sealing rib 22 allows to perform the centering of said cover 1 on said receptacle 2.

[0110] According to one embodiment, said centering and sealing rib 22 comprises a sealing surface 25 which is suitable for resting on at least one cavity surface 26 which at least partly delimits said receptacle cavity 9 so as to close and seal said receptacle 2.

[0111] According to one embodiment, said centering and sealing rib 22 has a closed and continuous path.

[0112] According to one embodiment, said cover 1 comprises, on the outer face 24 thereof, a plurality of stiffening bridges 20 connecting opposite surfaces of said centering and sealing rib 22 so as to provide said centering and sealing rib 22 with an improved resistance to deformation. The provision of this feature provides an improved sealing effectiveness to said centering and sealing rib 22 when it is under operating conditions.

[0113] According to one embodiment, said receptacle 2 is a standard receptacle and said cover 1 is compatible with a plurality of receptacles made according to various processing processes and in a variety of materials. For example, said receptacle 2 is made by means of thermoforming or by means of injection molding. For example, said receptacle 2 is made of plastic or of metal.

[0114] According to one embodiment, said receptacle 2 is a receptacle for food.

[0115] According to one embodiment, said receptacle 2 is an ice-cream tub.

[0116] According to one embodiment, said cover 1 is at least partly made of transparent or translucent material. Thereby, the visual inspection is possible of the contents of the container and when said container comprises foodstuffs, it gives increased palatability to the product.

[0117] According to one embodiment, said cover 1 further comprises at least one auxiliary safety device 31 comprising a hooking portion 32 which projects cantilevered from said cover 1 towards said lip 8 of said receptacle 2, and is suitable for coupling as an undercut against said lip face 15 of said lip 8 facing opposite to said cover 1. Thereby, a sturdier closure of container 1 is allowed. Preferably, said hooking portion 32 is a hooking nosepiece.

[0118] According to one embodiment, said auxiliary safety device 32 comprises at least one auxiliary device opening 33 which is suitable for making the portion of cover 1 surrounding said auxiliary device opening 33 deformable. Thereby, deforming said hooking portion 32 of said auxiliary safety device 31 is avoided.

[0119] According to one embodiment, said auxiliary safety device 32 is at least partly made on a portion of said outer edge wall 3. Preferably, said auxiliary safety device 32 is at least partly made on a rectilinear edge portion 34 of said outer edge wall 3.

[0120] According to one embodiment, said ribs 22 extend over said outer edge wall 3 and substantially have a semi-cylindrical shape.

[0121] A method is described below of first opening a container comprising a cover 1 and a receptacle 2 which is associable with said cover 1.

[0122] A method of first opening a container comprising a cover 1 and a receptacle, comprising the following steps:

- providing a cover 1 according to any one of the embodiments described above;
- uncoupling said hooking tooth 14 of said at least one safety seal 10 by elastically deforming said slice 13, thus avoiding bending said hooking tooth 14;
- removing cover 1 from an associable receptacle 2.

[0123] According to a possible operating method, one method comprises the further step of moving said tab 19 so as to tear said frangible element 11.

[0124] According to a possible operating method, one method comprises the further step of lifting said tab 19 so as to tear said frangible element 11 and cause a rotation of said slice 13 around said hinge element 12.

[0125] As shown in figures 9, 10 and 11, according to a possible operating method, certain possible steps of a method of first opening a container comprising a cover 1 comprising four safety seal devices 10, comprise the breakage of frangible elements 11 of at least two of said four safety seal devices 10 to remove cover 1.

[0126] As shown in figures 13 and 14, according to a possible operating method, certain steps of a method of first closure of a container comprising a cover 1 compris-

ing four safety seal devices 10, comprise the step of pushing said cover 1 towards said receptacle 2 so as to close and seal said receptacle cavity 9 without causing the breakage of the frangible elements 11 of said safety seal devices 10.

[0127] A person skilled in the art may make many changes, adaptations and replacements to the embodiments described above or can replace elements with others which are functionally equivalent in order to satisfy contingent needs without however departing from the scope of protection of the appended claims.

. **LIST OF REFERENCES**

[0128]

1) Container cover, or cover
2) Receptacle
3) Outer edge wall
4) First side portion
5) Second side portion
6) Corner portion
7) Side walls
8) Lip
9) Receptacle cavity
10) Safety seal device
11) Frangible element
12) Hinge element
13) Slice
14) Hooking tooth
15) Lip face
16) Abutment face
17) Introduction slide
18) Window
19) Tab
20) Stiffening bridges
21) Structural reinforcing element
22) Centering and sealing rib
23) Inner face
24) Outer face
25) Sealing surface
26) Cavity surface
27) Cover perimeter, or perimeter
28) Connector
29) Edge portion
30) Flexible slice arms
31) Auxiliary safety device
32) Hooking portion
33) Auxiliary device opening
34) Rectilinear edge portion

Claims

1. A container cover (1), or cover (1), which is suitable for closing a receptacle to form a container,
wherein said container comprises a receptacle (2) which is associable with said cover (1) and comprising side walls (7) which delimit at least one receptacle cavity (9), said side walls (7) comprising at least one lip (8) which projects opposite with respect to said receptacle cavity (9);
said cover (1) being suitable for covering said receptacle cavity (9) by resting on said at least one lip (8) to close and seal said receptacle cavity (9);
and wherein said cover (1) comprises at least one safety seal device (10) which is suitable for indicating the occurrence of the first opening of the container and is suitable for showing the occurrence of the tampering with the container;
and wherein said safety seal device (10) comprises at least one frangible element (11) and at least one hinge element (12) which are structurally connected so as to define a slice (13) of said cover (1);
and wherein said at least one safety seal device (10) comprises a hooking tooth (14) which is suitable for projecting cantilevered from said cover (1) towards said lip (8) of said receptacle (2) when said cover (1) is mounted on said receptacle (2);
and wherein said at least one hooking tooth (14) is suitable for coupling as an undercut against a lip face (15) of said lip (8) facing opposite to said cover (1) so as to snap fit said cover (1) to said receptacle (2) to close said receptacle cavity (9);
and wherein said at least one hooking tooth (14) is substantially unsuitable for flexural work;
and wherein said at least one hooking tooth (14) comprises at least one abutment surface (16) which is suitable for facing said lip face (15),
and at least one snap insertion slide (17) inclined so as to slide on a portion of said at least one lip (8) and suitable for causing the elastic deformation of said slice (13),
to allow the first closure of the container, thus avoiding causing the breakage of said at least one frangible element (11);
and wherein said frangible element (11) has such a shape as to be more brittle than said hooking tooth (14) so that said safety seal device (10) indicates the occurrence of the first opening of the container by means of the breakage of said at least one frangible element (11);
characterized in that
said slice (13) comprises at least one window (18) which is suitable for making said slice (13) elastically deformable so as to allow the snap fitting of said cover (1) to said receptacle (2).

2. A cover (1) according to claim 1, wherein said slice (13) comprises flexible slice arms (30) surrounding said window (18).

3. A cover (1) according to claim **1** or **2,** comprising at least one outer edge wall (3) which defines, with an edge thereof, the perimeter of said cover (1); and wherein said outer edge wall (3) comprises at least

one first side portion (4) and at least one second side portion (5) having substantially rectilinear extension, and wherein said first side portion (4) is not parallel to said second side portion (5) so that said first side portion (4) and said second side portion (5), or extensions thereof, define at least one corner portion (6) of said cover (1); and wherein said corner portion (6) comprises said at least one safety seal device (10).

4. A cover (1) according to any one of the preceding claims, wherein said frangible element (11) is structurally identical to said hinge element (12) and the breakage of said frangible element (11) is caused exclusively by the positioning of said frangible element (11) in the body of said cover (1).

5. A cover (1) according to any one of the preceding claims, wherein said hinge element (12) has a thickness which is greater than said frangible element (11).

6. A cover (1) according to any one of the preceding claims, wherein said hinge element (12) has a substantially rectilinear extension; and wherein said at least one slice (13), after the first opening of the container, is suitable for rotating around a hinge axis comprised in, or substantially coinciding with, said hinge element (12).

7. A cover (1) according to any one of the preceding claims, wherein said slice (13) comprises a tab (19) which projects substantially cantilevered from said cover (10) to form a gripping element, to obtain the opening of said cover (1); and wherein by manipulating said tab (19), said frangible element (11) is biased and said hinge element (12) is flexurally biased;

8. A cover (1) according to claim **7,** wherein said tab (19) is shaped so as to increase the lever arm of said slice (13), so that by lifting said tab (19) is caused the tearing of said frangible element (11).

9. A cover (1) according to claim **7** or **8,** wherein said tab (19) is shaped so as to allow the elastic deformation of said slice (13) to carry out the first closure of the container, thus avoiding the deformation of said hooking tooth (14).

10. A cover (1) according to any one of the preceding claims, wherein when said hooking tooth (14) is coupled as an undercut against said lip face (15), it causes a residual tensile stress of at least one portion of said cover (1) so as to provide a constant load which keeps said cover (1) closed and sealed also for closures following the first opening.

11. A cover (1) according to any one of the preceding claims, wherein said cover (1) is made in a single piece.

12. A cover (1) according to any one of the preceding claims, wherein said cover (1) is at least partly made of a transparent or translucent material.

13. A cover (1) according to any one of the preceding claims, comprising four safety seal devices (10); and wherein said four safety seal devices (10) are placed at four vertexes of a quadrilateral which defines the shape of said cover (1).

14. A cover (1) according to any one of the preceding claims, further comprising at least one auxiliary safety device (31) comprising a hooking portion (32) which projects cantilevered from said cover (1) towards said lip (8) of said receptacle (2), and is suitable for coupling as an undercut against said lip face (15) of said lip (8) facing opposite to said cover (1); and wherein said auxiliary safety device (32) comprises at least one auxiliary device opening (33) which is suitable for making the portion of cover (1) surrounding said auxiliary device opening (33) deformable.

15. A method of first opening a container, comprising the following steps:

- providing a cover (1) according to any one of the preceding claims;
- uncoupling said hooking tooth (14) of said at least one safety seal (10);
- removing the cover (1) from an associable receptacle (2);

characterized in that
said step of uncoupling said hooking tooth (14) of said at least one safety seal (10) is performed by elastically deforming said slice (13) and avoiding bending said hooking tooth (14).

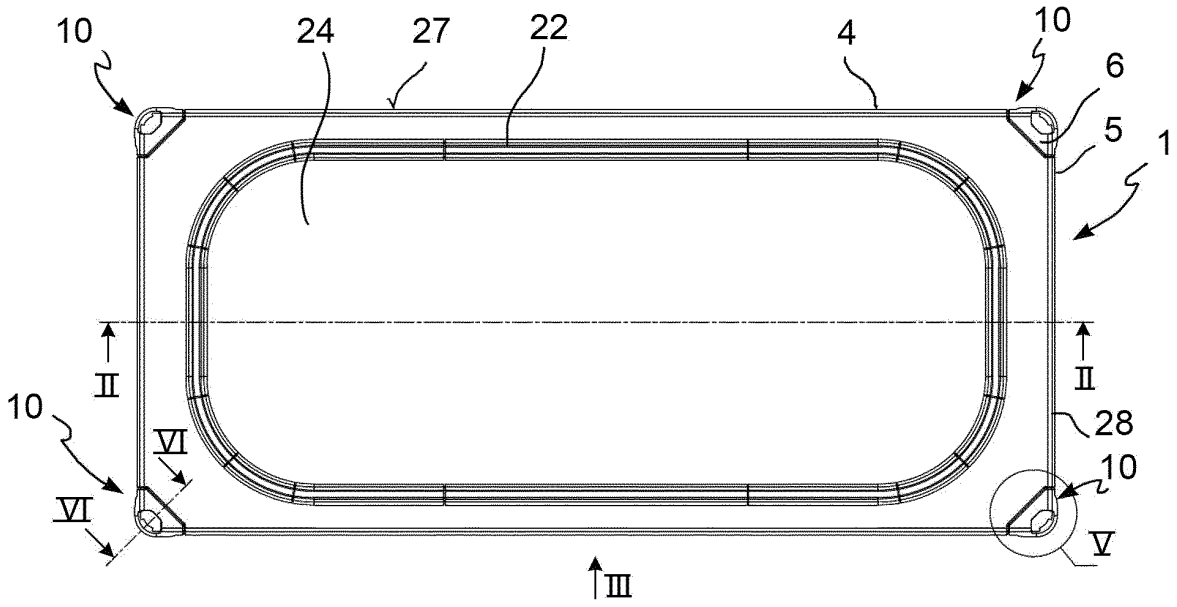


FIG. 1

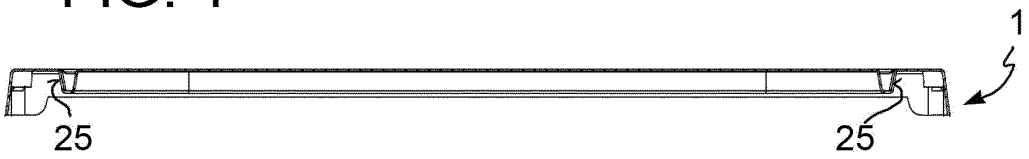


FIG. 2

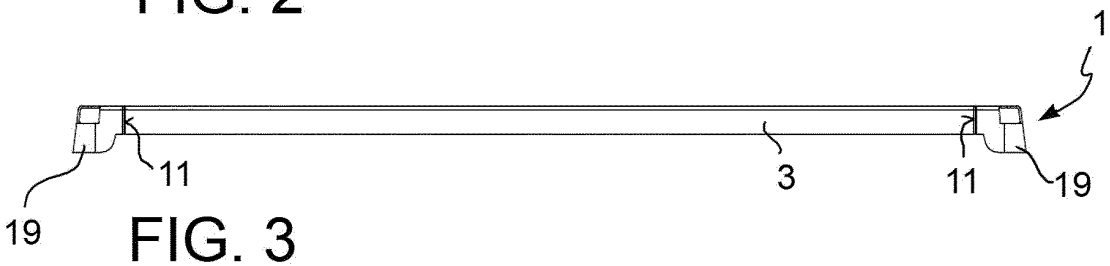


FIG. 3

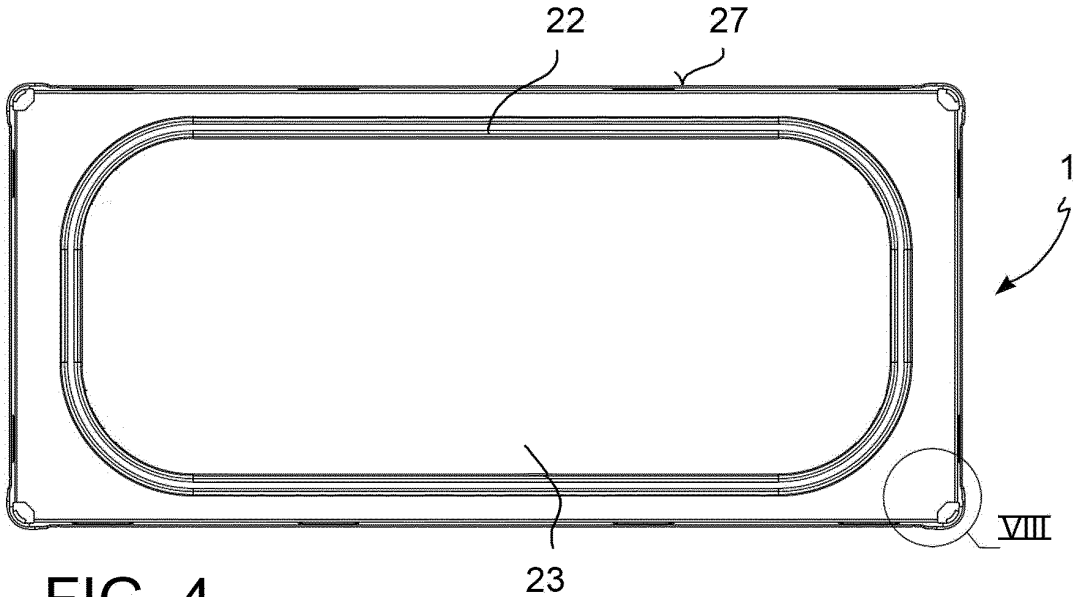


FIG. 4

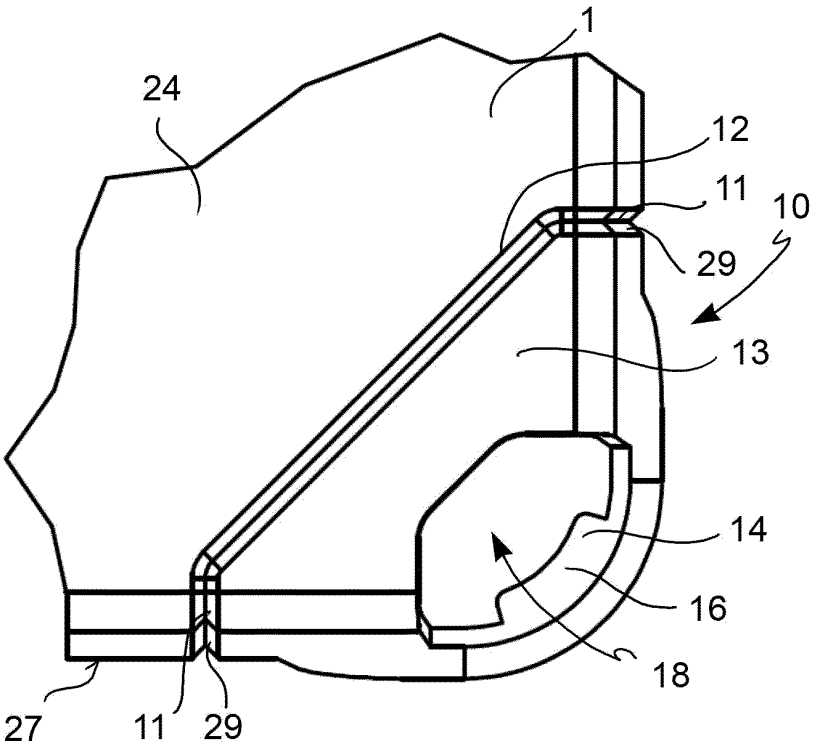


FIG. 5

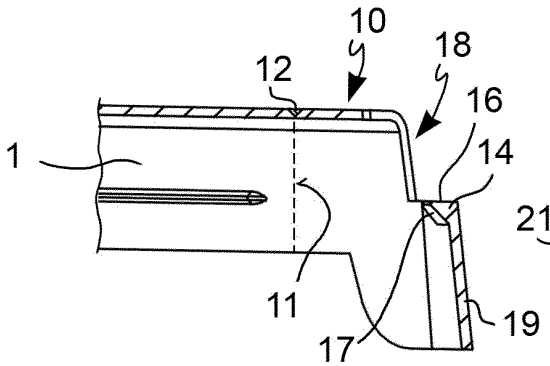


FIG. 6

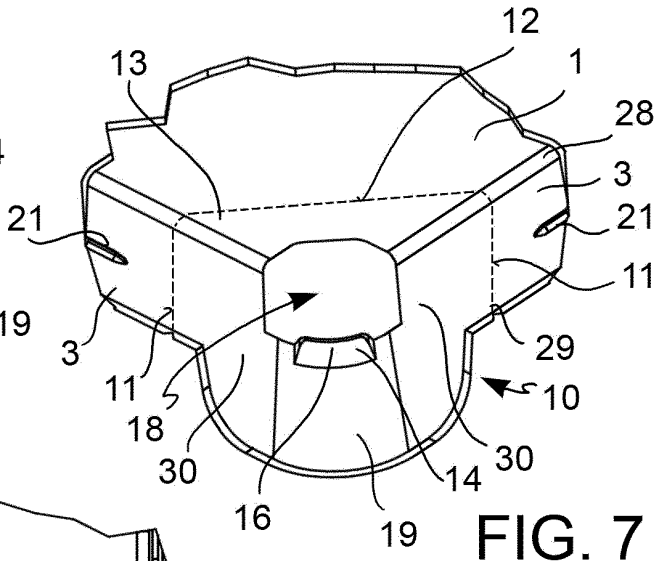


FIG. 7

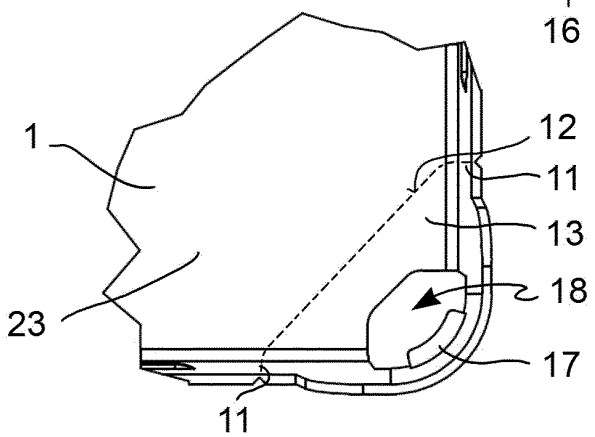


FIG. 8

FIG. 5bis

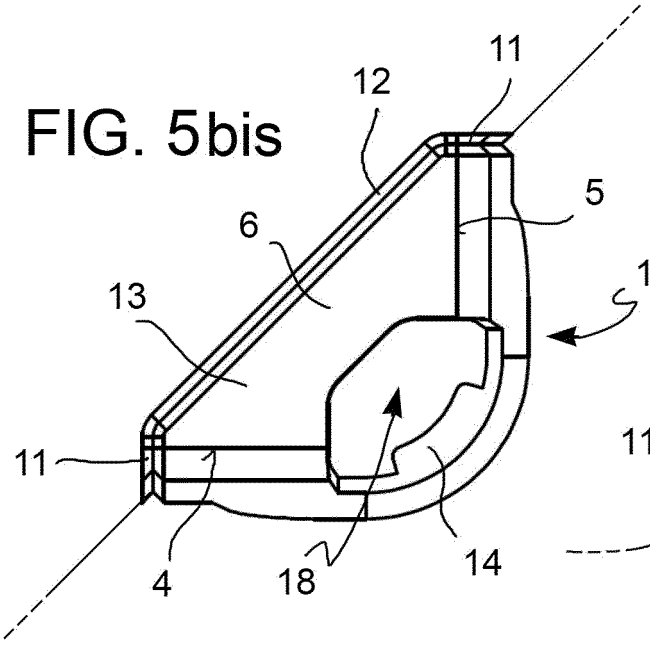
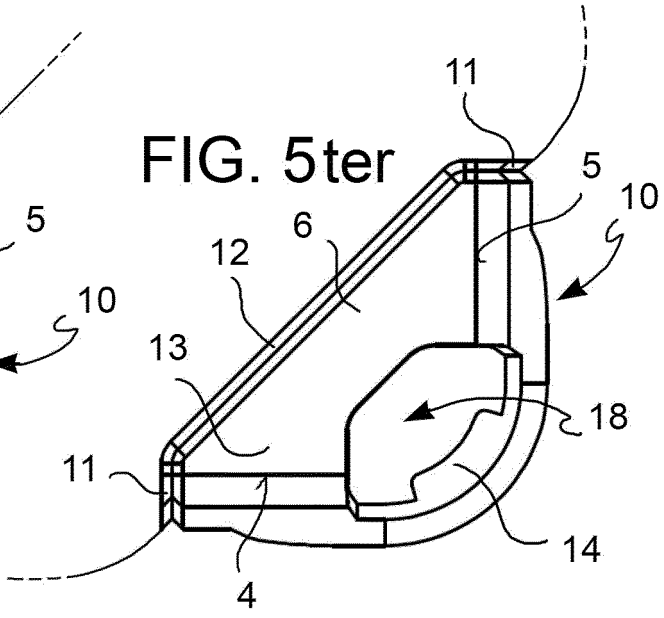


FIG. 5ter



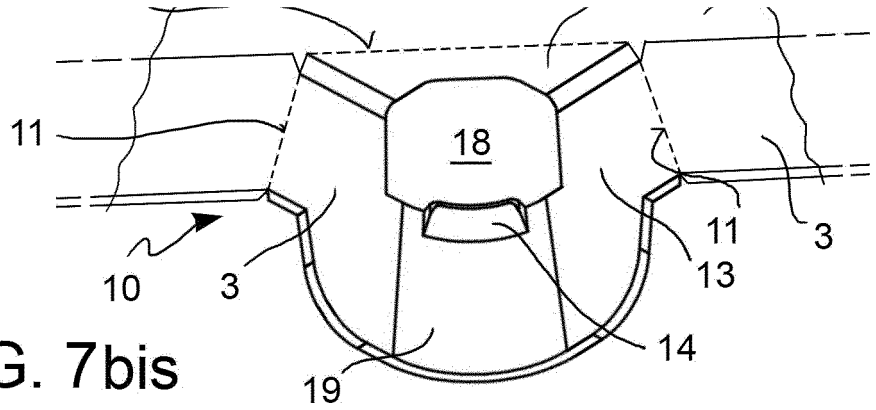


FIG. 7bis

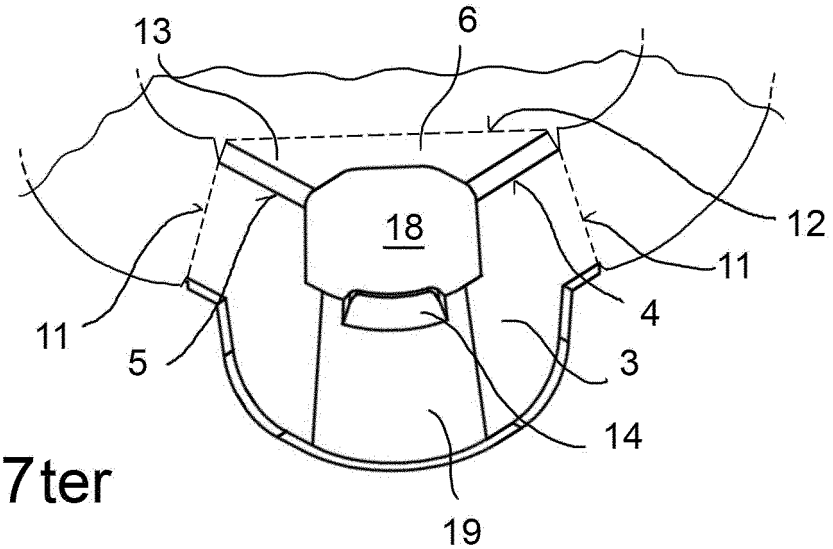


FIG. 7ter

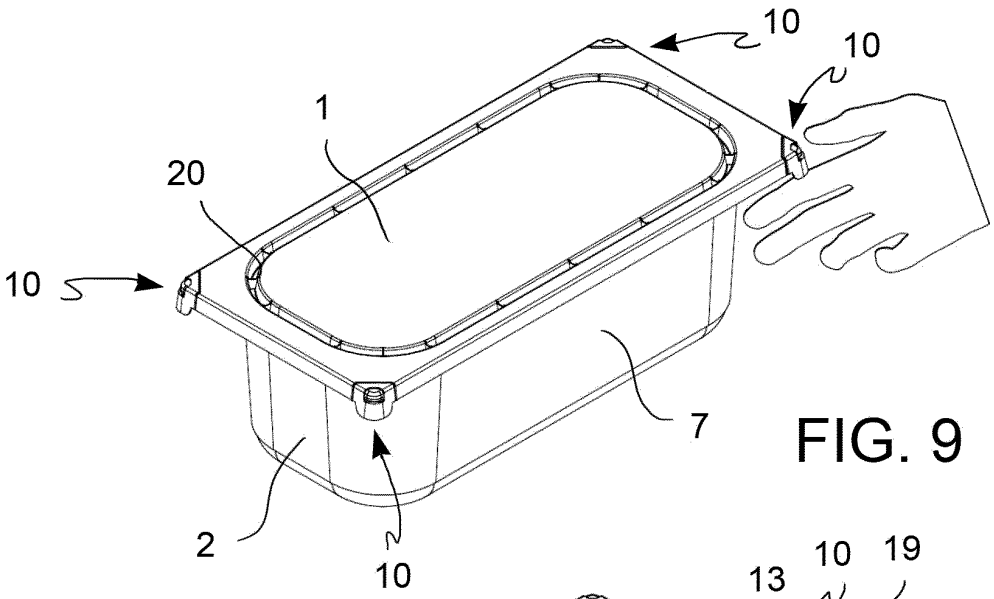


FIG. 9

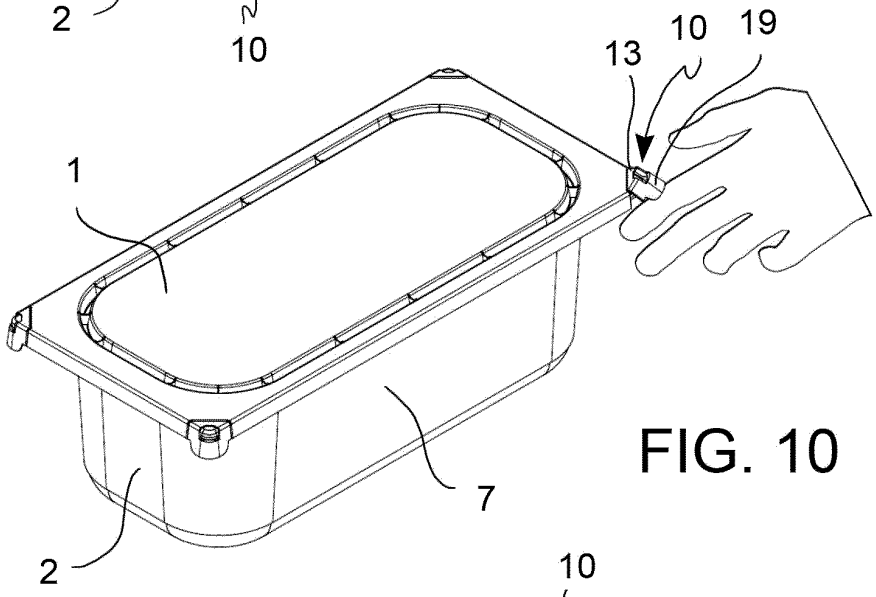


FIG. 10

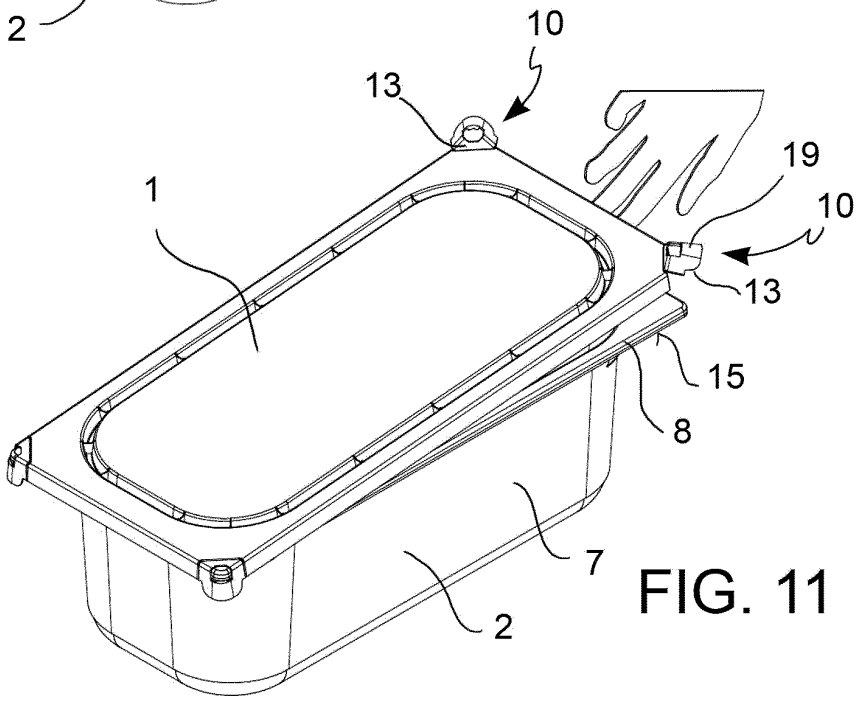


FIG. 11

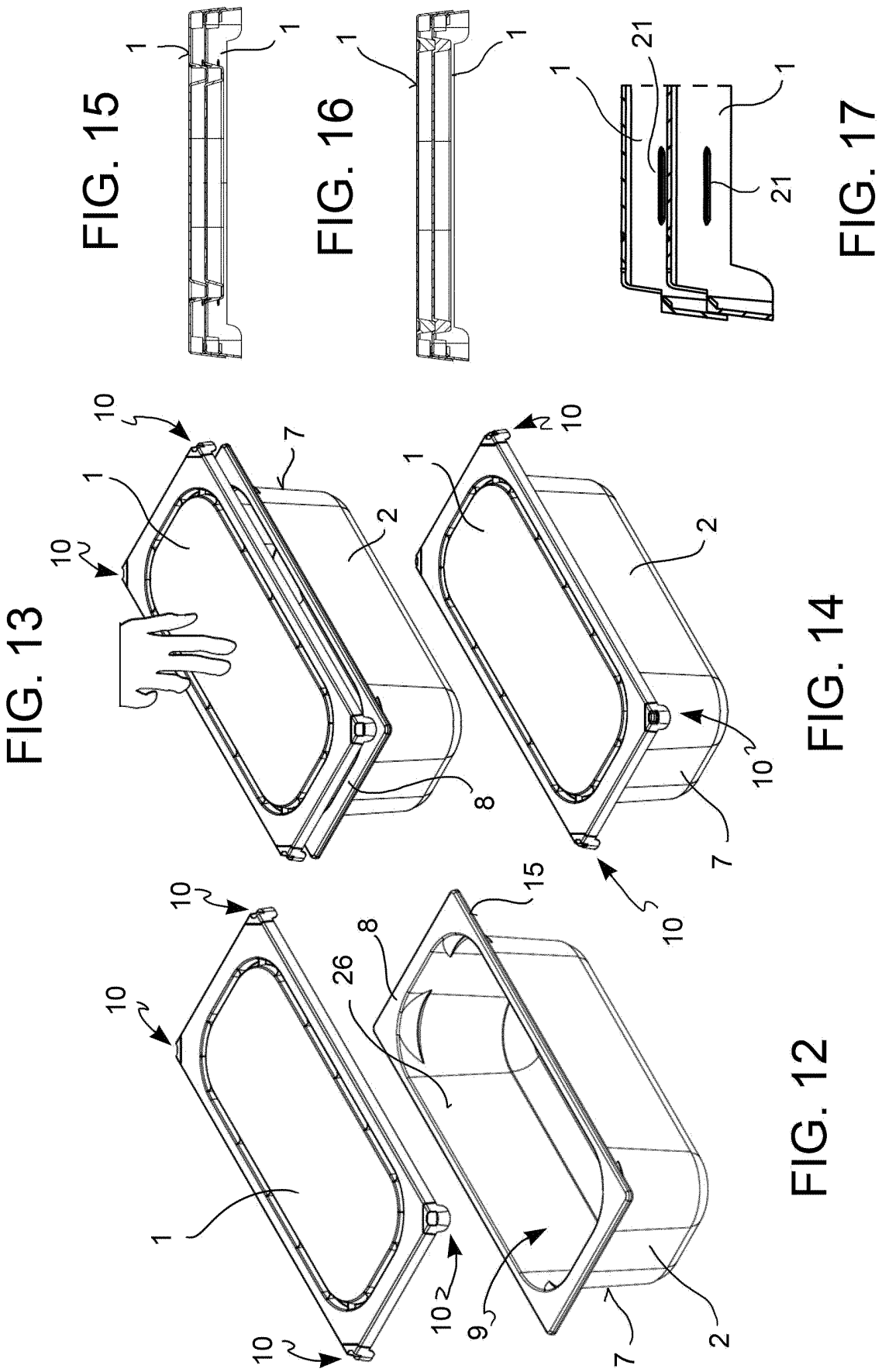


FIG. 15
FIG. 16
FIG. 17
FIG. 13
FIG. 14
FIG. 12
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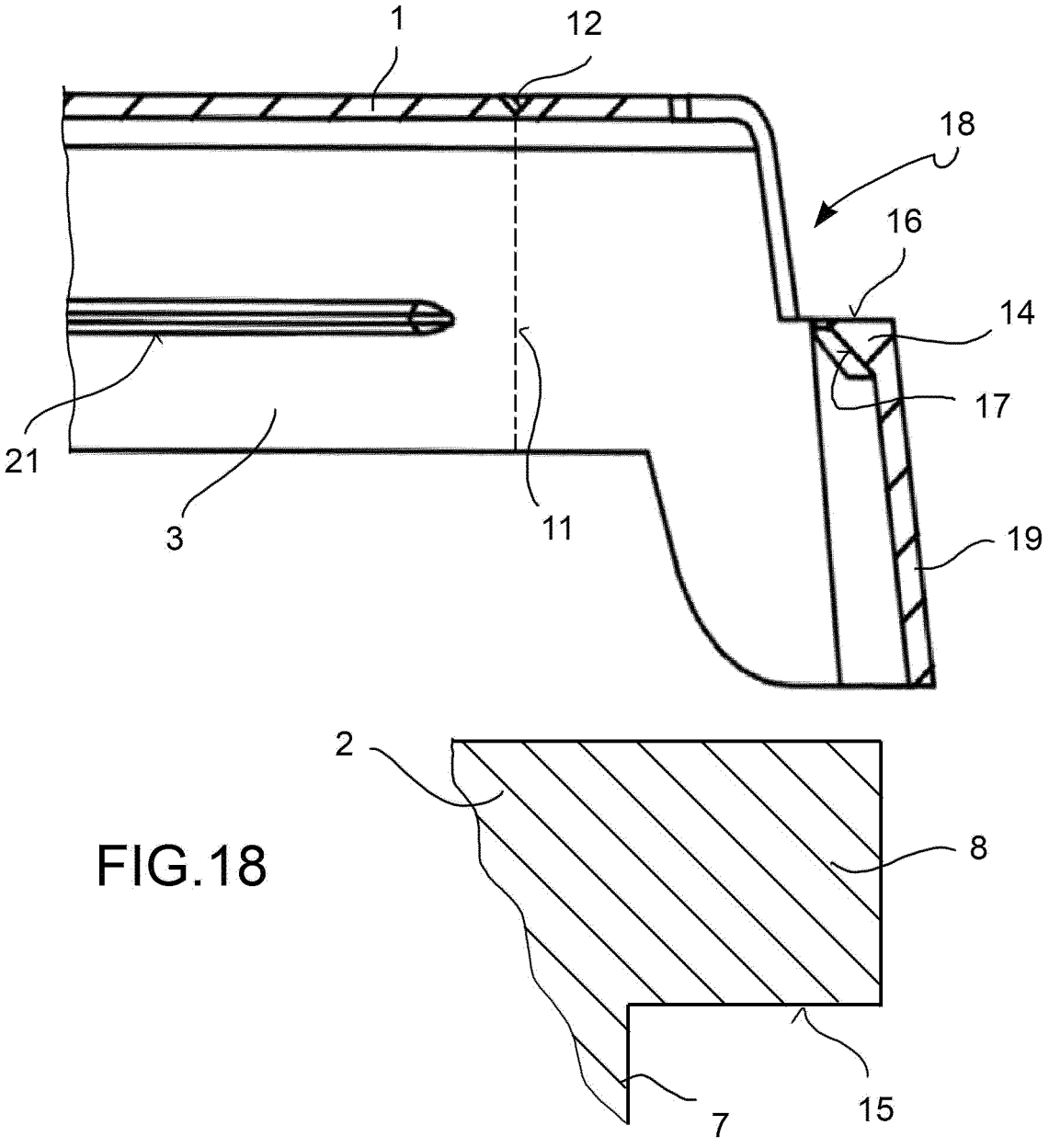

FIG.18

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EUROPEAN SEARCH REPORT

Application Number
EP 16 19 8453

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	2 June 2017	Mans-Kamerbeek, M

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