Office de la Propriété Intellectuelle du Canada
Un organisme d'Industrie Canada

Canadian Intellectual Property Office
An agency of Industry Canada

CA 2567340 A1 2005/12/01

(21) 2 567 340

(12) DEMANDE DE BREVET CANADIEN
CANADIAN PATENT APPLICATION

(13) A1

(86) Date de dépôt PCT/PCT Filing Date: 2005/05/18
(87) Date publication PCT/PCT Publication Date: 2005/12/01
(85) Entrée phase nationale/National Entry: 2006/11/17
(86) N° demande PCT/PCT Application No.: EP 2005/005406
(87) N° publication PCT/PCT Publication No.: 2005/113347
(30) Priorité/Priority: 2004/05/18 (DE20 2004 007 969.0)

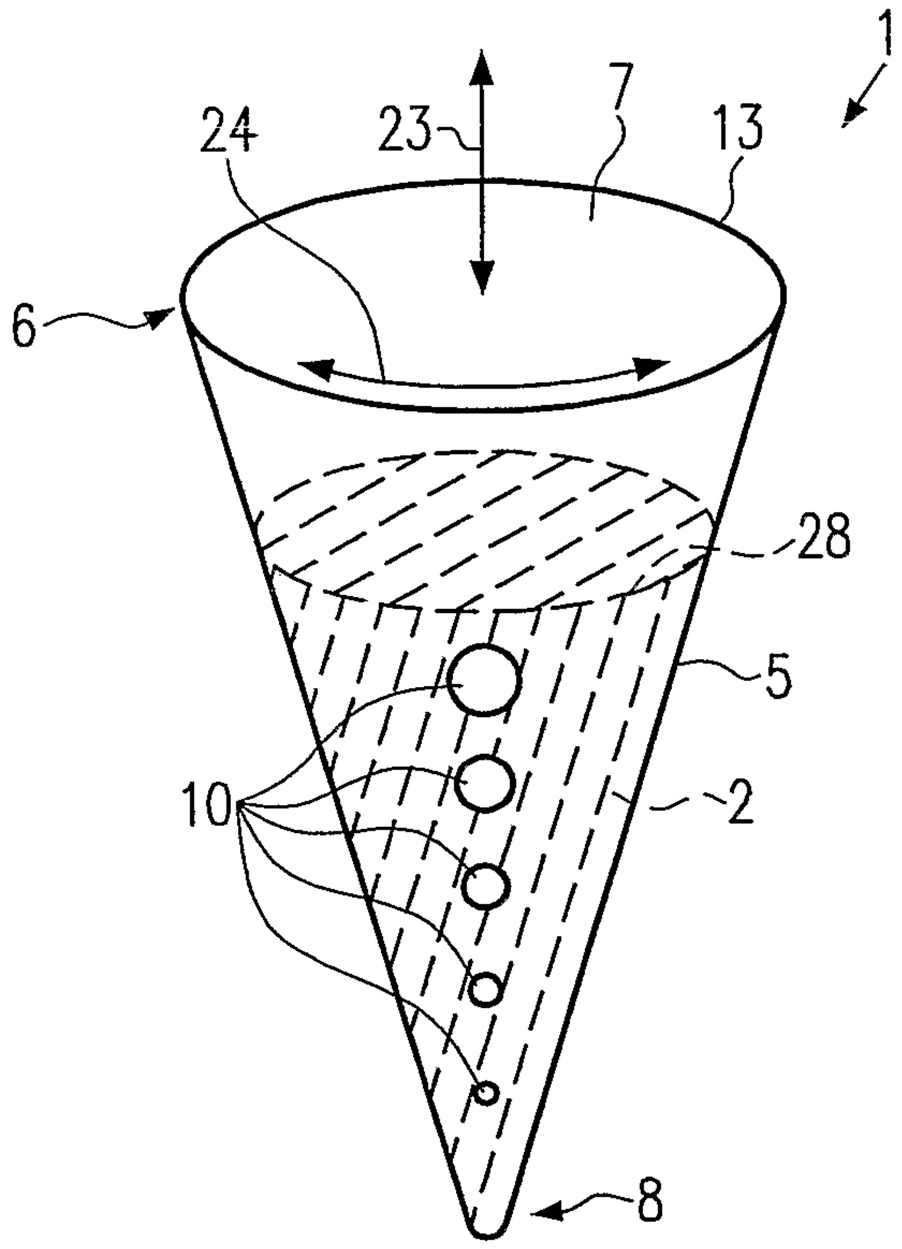
(51) Cl.Int./Int.Cl. *B65D 3/06* (2006.01),
B65D 3/28 (2006.01)

(71) Demandeur/Applicant:
SEDA S.P.A., IT

(72) Inventeur/Inventor:
D'AMATO, GIANFRANCO, IT

(74) Agent: ROBIC

(54) Titre : RECIPIENT
(54) Title: CONTAINER



(57) Abrégé/Abstract:
The invention relates to a container (1) for holding foodstuff, comprising at least one paper layer (3) and a container wall (4) having an additional layer (4). Said container (5), on its upper end (6), has a container opening (7) and is closed on its lower end opposite said container opening. At least the container wall is formed from a two-dimensional cut (9) that is joined to form a continuous container wall. At least one inspection window (10) is configured in the container wall and is obturated by a transparent or translucent window film (11). The container wall is at least partially curved in the area of the inspection window (10) and the window film for sealing the inspection window is hot-sealed with the paper layer (3).

(12) NACH DEM VERTRAG ÜBER DIE INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT) VERÖFFENTLICHTE INTERNATIONALE ANMELDUNG

(19) Weltorganisation für geistiges Eigentum
Internationales Büro

(43) Internationales Veröffentlichungsdatum
1. Dezember 2005 (01.12.2005)

PCT

(10) Internationale Veröffentlichungsnummer
WO 2005/113347 A1

(51) Internationale Patentklassifikation[7]: B65D 3/06, 3/28

(21) Internationales Aktenzeichen: PCT/EP2005/005406

(22) Internationales Anmeldedatum:
18. Mai 2005 (18.05.2005)

(25) Einreichungssprache: Deutsch

(26) Veröffentlichungssprache: Deutsch

(30) Angaben zur Priorität:
20 2004 007 969.0 18. Mai 2004 (18.05.2004) DE

(71) Anmelder *(für alle Bestimmungsstaaten mit Ausnahme von US)*: **SEDA S.P.A.** [IT/IT]; Corso Salvatore D'Amato, 84, I-80022 Arzano Napoli (IT).

(72) Erfinder; und

(75) Erfinder/Anmelder *(nur für US)*: **D'AMATO, Gianfranco** [IT/IT]; Corso Salvatore D'Amato, 84, I-80022 Arzano Napoli (IT).

(74) Anwalt: **HILGERS, Hans**; Grünecker, Kinkeldey, Stockmair & Schwanhäusser, Maximilianstrasse 58, 80538 München (DE).

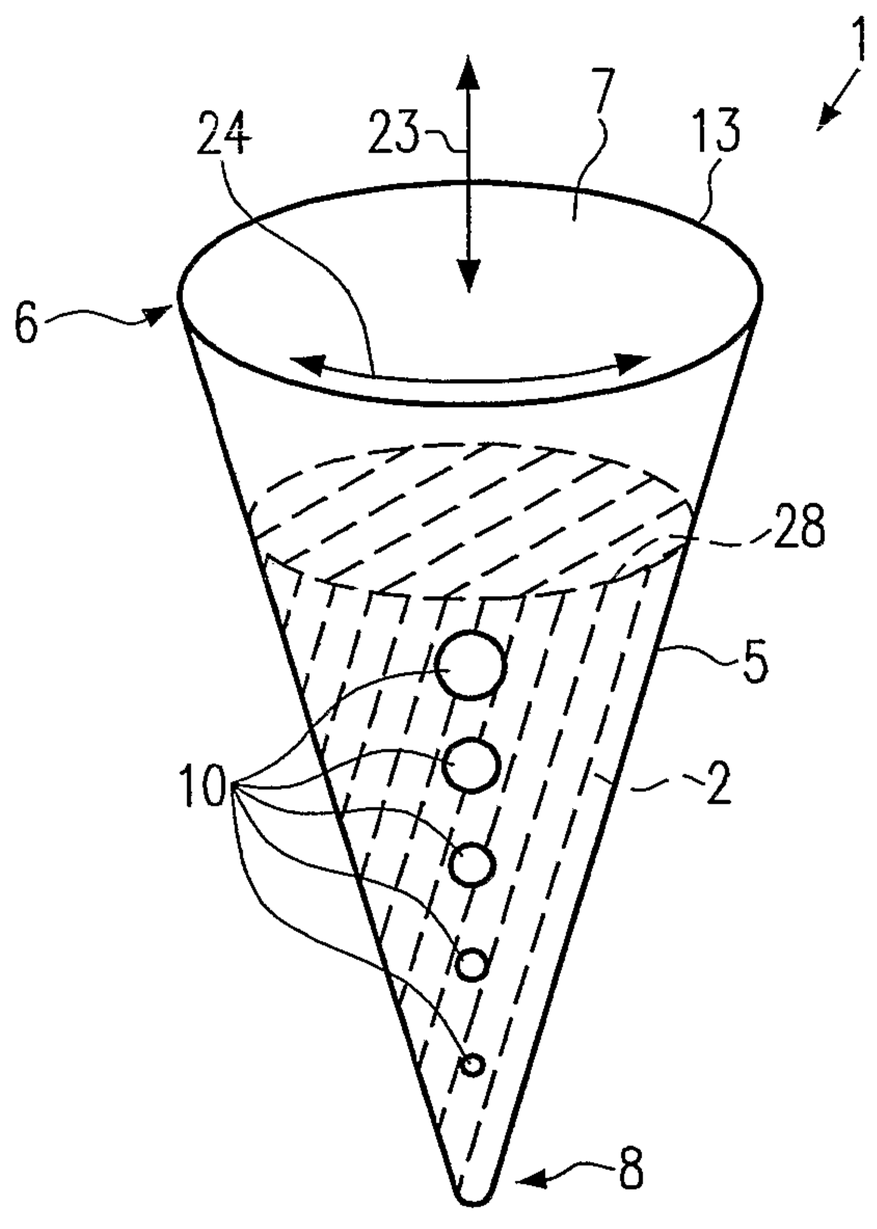
(81) Bestimmungsstaaten *(soweit nicht anders angegeben, für jede verfügbare nationale Schutzrechtsart)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Bestimmungsstaaten *(soweit nicht anders angegeben, für jede verfügbare regionale Schutzrechtsart)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), eurasisches (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), europäisches (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL,

[Fortsetzung auf der nächsten Seite]

(54) Title: CONTAINER

(54) Bezeichnung: BEHÄLTER



(57) Abstract: The invention relates to a container (1) for holding foodstuff, comprising at least one paper layer (3) and a container wall (4) having an additional layer (4). Said container (5), on its upper end (6), has a container opening (7) and is closed on its lower end opposite said container opening. At least the container wall is formed from a two-dimensional cut (9) that is joined to form a continuous container wall. At least one inspection window (10) is configured in the container wall and is obturated by a transparent or translucent window film (11). The container wall is at least partially curved in the area of the inspection window (10) and the window film for sealing the inspection window is hot-sealed with the paper layer (3).

(57) Zusammenfassung: Behälter (1) zur Aufnahme eines Nahrungsmittels mit einer wenigstens eine Papierschicht (3) und eine weitere Schicht (4) aufweisenden Behälterwand (4), welcher Behälter (5) an seinem oberen Ende (6) eine Behälteröffnung (7) aufweist und an seinem der Behälteröffnung gegenüberliegenden unteren Ende verschlossen ist, wobei zumindest die Behälterwand aus einem zweidimensionalen Zuschnitt (9) gebildet ist, der zur Bildung einer durchgehenden Behälterwand mit sich selbst verbunden ist, und wobei in der Behälterwand zumindest ein Sichtfenster (10) ausgebildet ist, das durch eine transparente oder durchscheinende Fensterfolie (11) verschlossen ist, wobei die Behälterwand zumindest teilweise im Bereich des Sichtfensters (10) gekrümmt verläuft und die Fensterfolie zur Abdichtung des Sichtfensters mit der Papierschicht (3) heißversiegelt ist.

WO 2005/113347 A1

WO 2005/113347 A1

PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Veröffentlicht:

— *mit internationalem Recherchenbericht*

Zur Erklärung der Zweibuchstaben-Codes und der anderen Abkürzungen wird auf die Erklärungen ("Guidance Notes on Codes and Abbreviations") am Anfang jeder regulären Ausgabe der PCT-Gazette verwiesen.

Container

The invention relates to a container for holding food stuffs with a container wall comprising at least one paper layer and an additional layer. Said container, at its upper end, has a container opening and is closed on its lower end opposite said container opening. At least the container wall is formed from a two-dimensional cut that is joined to form a continuous container wall. At least one inspection window is configured in the container wall and is closed by a transparent or translucent window film.

Such a container is known as an essentially cuboid-like liquid container. Such a liquid container comprises a flat lateral wall, in which a window is provided extending in longitudinal direction of the container. This window is used for monitoring the filling level of liquid filled in the container. The paper layer of such a container is made of a relatively stiff cardboard material and comprises on its inner surface a further fluid tight film or foil made of a resin material. The window is centrally made only in this relatively stiff layer, and is closed on the inner surface of the container by corresponding fluid tight foil, which can be transparent or at least translucent.

Further cuboid-like containers are know that are used for holding dry food such as rice, noodles, flour, sugar, or the like. These containers include a window in a flat lateral wall that is usually closed from the interior by a foil glued in the area of the window.

According to those known containers, the corresponding paper layer is always relatively stiff and, in particular, made of cardboard material. According to this paper layer, the container has a combination with corresponding folds to form upper and lower surfaces as well as by lateral surfaces arranged in circumferential direction relatively high rigidity. The window foil is only used in this combination for covering the corresponding window to prevent any leakage of liquid or also of dry food through the window.

It is an object of the invention to improve the container described above, such that also by using very thin paper layers and without further folds or folding lines of the corresponding cup for forming a three dimensional container, sufficient stability of the container is rendered possible with such window maintained. This object is solved by the features of claim 1.

According to the invention, such an invention has the particular feature that the container wall is curved, at least partially in the region of the window. By this curvature, an increased stiffness is obtained and also sufficient stability for the finished container. To further increase the stability in this connection, the window foil for sealing the window is hot sealed with the paper layer. By such a hot sealing, a dense contact between window foil and paper layer is obtained, which provides further stability in addition to the wall curvature and additional stiffening of the container wall, and finally for the container.

According to the features of the invention, such a window is also possible for containers with very thin walls, wherein, nevertheless, a corresponding stiffness and stability of the container is sufficient, such that food may be taken out of the container opening.

Further, by the window in the curved region of the container wall and the hot sealing of the window foil, also the form stability of the container is supported at least in this region. Without the features of the invention, such a container would otherwise not be sufficiently stable in its form without a filling to simply fill, for example the container, or to stockpile same.

By respective curvature of the container wall in the region of the window, a sufficient stability in circumferential direction, as well as in longitudinal direction of the container is obtained.

According to the invention, it is already sufficient if the window foil is hot sealed to the paper layer at least in the region of a rim of the window. Such hot sealing may be performed at least along all of the rim of the window to sufficiently seal the window. The exterior of the rim or in a greater distance to the window it is also possible to use another kind of fixing between window foil and paper layer.

To obtain a paper layer particular on its outer surface which is in a simple way fluid dense relative to gases and liquid, the further layer may be a metal layer, in particular an aluminum layer. Such layers are simple to manufacture and to fix to the paper layer. Such a metal layer is preferentially coated on the respective outer surface of the paper layer. Additionally, or also alternatively with regard to the metal layer, it is possible to coat a respective inner surface of the paper layer with a resin layer as a further layer. Such a resin layer is made,

for example of polyethylene or another resin such as polypropylene, polyvinylchloride, polystyrene, or the like.

The respective further layer is particularly used for barrier purposes, which means used for a respective density with respect to gas and liquids. Furthermore, such a metal layer is in particular helpful for forming a rim with rolled in, folded, or in another way formed opening edge. The metal layer may also support the tear open of the container. The paper layer is mainly used for stabilizing the container, and is usually thicker than the further layer.

The container opening at the upper end of the container is surrounded by an opening rim. According to a simple embodiment, this opening edge may be formed by an upper edge of a two-dimensional cut. Such edge may be a simple cutting edge without separate treatment if no or only some contact with liquid is expected in this area.

It is also possible that the opening edge or rim is folded, rolled in, or otherwise shaped without changing any characteristics of the container wall. By such a treatment of the opening edge, additional stiffening of the container in the region of the container opening is obtained. Furthermore, an opening rim treated in such a way can simplify the fixing of a lid, a foil, or other covering of the opening.

The treatment of the opening rim edge can also be performed after the filling in of the corresponding food.

To connect thick metal layer and paper layer in a simple and sufficient way with each other a corresponding adhesive may be used for connecting, wherein the layers may in particular be laminated. By such laminating, the manufacturing of both layers connected to each other and also the corresponding cut of the container is simplified.

Depending on the shape of the container and the amount of food filled in, it is possible that for example only in a particular region of the paper layer, the metal layer, or the resin layer, respectively, are provided and connected with the paper layer. To simplify production of the cut made of both layers, they are generally congruent, which means have the same dimension, such that they cover to each other.

In the region of the window, it may further be of advantage if the further layer covers respective free edges of the paper layer, which surround the window or are even laid around up to the inner surface or to the outer surface of the paper layer in the region of the window.

Generally, the folding edges extending in longitudinal direction of the container will provide additional stiffening of the container. However, according to the invention, it is possible that such folding edges are not used, and that the container is essentially rotationally symmetric. This means that the cross section of the container may be circular or oval. Corresponding stiffening or folding edges are no longer necessary according to the invention.

For sufficient density of the window, and for obtaining further stability, it is sufficient, according to the invention, when the window foil is geometrically similar to the window. This means that the window foil has essentially the same geometrical shape as the window, but greater dimensions, such that the hot sealing along the window rim between window foil and paper layer can take place. This hot seal is generally performed by applying heat and pressure, such that a deep connection between window foil and paper layer is obtained.

Regarding the window foil, it is further said that this may be arranged by hot seal on the interior surface of the paper foil, on the interior surface of the resin layer as a further layer, on the exterior surface of the metal layer as a further layer, which means on the outer side of the container, and also along the window rim between paper layer and further layer and will be hot sealed there.

It is also possible that only one window foil is sealingly arranged for several windows. The respective hot seal may be performed along a region that surrounds all windows or also separately for the rim of each window.

It is further possible that the window foil is hot sealed essentially on a complete inner surface of the paper layer. This simplifies production, as smaller sections of window foil do not have to be assigned to each window of the cup. The production of such a cut of essentially three layers, that means metal layer, paper layer, and window foil, may also be performed in a kind of laminate and may particularly be performed in a single process step.

For the window foil, different materials are possible that are particularly transparent or at least translucent even after the connection to the paper layer. Furthermore, such a material should be appropriate for hot sealing. Examples of such materials are polyethylene, polypropylene, polyvinylchloride, polystyrene, polyamide, PET, or the like.

To produce particularly the container wall in a simple way be one cut, the connection of the cup with itself may be produced by heat and/or pressure and/or using of an adhesive. The connection of the cut with itself can be performed in different ways.

According to the one embodiment, the cut is connected with itself along lateral edges of the cut arranged to strike each other.

By such an arrangement, the outer surface of the container is relatively smooth, as there is no overlap and the thickness of the container wall is particularly constant along the circumference of the container wall. A simple embodiment of such a connection of the cut with itself is for example when the cut is connected to itself along an overlap area extending in longitudinal direction of the container. This overlap area will usually not comprehend the window foil, but only those layers arranged above each other and connected to each other made of paper and metal. The corresponding connection of the cup is performed, see also comments above, by an adhesive and possibly also by additionally applying heat and/or pressure.

To optimize such a container and particularly a container wall for removal of food, the corresponding edges of the cut may be fluid tight. Such fluid tightness occurs, for example, to edges surrounding the window, to an edge forming the opening rim, and also to an edge arranged in the interior of the container. Such a fluid density may be obtained by coating a corresponding sealing means or by the usage of a further film or foil of a resin material. Such a resin foil may, in particular, cover the paper layer in a fluid tight way, particularly on the outside of the window foil. It is also possible that this foil of resin material is arranged between paper layer and window foil. In this case the hot seal may be performed between window foil and resin layer.

To improve the optical appearance of the container, the metal layer may have printing on its exterior surface. Such a print may also be used to designate the contents or for advertising

reasons or the like. Further printings are possible that have a three-dimensional effect, according to which the optical appearance may be further improved. Such a printing with a three-dimensional effect is, for example, a hologram.

The printing may be arranged on the exterior surface of the container at any place, wherein also printing on the window or the respective window foil is possible. A simple example of such printing directly on the window is, for example, a marking for the filling level in the form of a scale or the like. There are essentially no limitations concerning the graphical forming or coloring of the printing, wherein particularly the metal foil is well usable for printing.

In the region of the window it may be a further advantage when it has a printing that is first visible after at least partial withdrawal of the food. For example, if said printing of the window has the color of the food in the container, it will only be visible after withdrawal of the food. This may be used for some surprising effect or for some kind of lottery or the like.

Different shapes are possible for the container. The first form is, for example, a conical form used for arranging a waffle or the like for ice cream as food. Instead of a waffle, some cladding of the ice cream made of chocolate or other material more rigid than ice cream and also edible may be used. This is first put in or filled in the container and may later be filled with ice cream. Here, the container is essentially used only as an envelope for the waffle or chocolate cladding.

A further container shape is a so-called squeezable container that is also essentially conical. At its lower end, such a squeezable container generally has a flag-like continuation that is formed by pressing the lower container ends together and connecting the container wall with itself. From this flag-like end, the contents of the container may be withdrawn through the upper container opening by further manually squeezing the container wall.

Furthermore, the container may also be essentially cup-like and may be used for cold and warm drinks. In such a cup-like container, the lower closed end may comprise a bottom insert, which and also a lid possibly closing the container opening are in particular formed by an at least partially transparent material. The usage of such a bottom insert and its connection with the bottom wall is generally known.

If this bottom insert and/or lid are also made of transparent material, they may be used in addition to the window to look into the container interior.

Independent of the shape of the container, it may be considered as advantageous when such a container is stackable and de-stackable.

If a corresponding window is used for inspecting the container essentially along its total height, the corresponding window may essentially extend in longitudinal direction of the container. Thereby, it is particularly possible to see a decrease of filling level according to food withdrawal within the container. Furthermore, it is possible to see if an amount of food indicated actually is filled in the container.

The window or the windows may have different geometrical shapes and may be arranged in different ways. Examples for such window shapes are angled, in particular squared, oval, round, essentially rhombic or other shapes. Several of such windows may be arranged side by side and/or on top of each other in circumferential direction and/or in longitudinal direction of the container. It is also possible that different geometrically shaped windows are combined in one container. Further arrangements of windows are possible that result in a particular geometrical pattern, as for example circular windows with decreasing diameter in longitudinal direction of the container to the upper or lower end, and an arrangement of windows that results in some kind of face or the like, or that results in figures known to children.

A further shape of a window extends essentially spiral-like along the longitudinal axis of the container. Also here, several windows may be arranged on the container.

According to one embodiment of the invention, the food may be withdrawn from the container through the container opening. It might be necessary to first remove a lid arranged in this area.

The lid may be removed by means of a corresponding lid handle without destroying the container wall. It is also possible that the upper area of the container wall is removed together with the lid, wherein in this region there may be a tearing line in the container wall.

Such a tearing line may be formed in different ways. One example is a thinning of the material.

To simplify the tearing in the area of such a tearing line, a handle may be assigned to the tearing line. The tearing line may essentially extend also along an upper and/or lower rim of the window. This allows to form a tearing line by the edge of a window foil. This is also valid if there are several windows arranged above each other, such as in a spiral or in another way.

By such an arrangement of the tearing line in the region of the window it may be further advantageous when the handle of the tearing line is arranged at the window foil or is eventually formed by the window foil. Thereby, respective region of container wall will be removed by the tearing handle and the window foil connected thereto along the tearing line or lines and the interior of the container is sufficiently accessible for withdrawal of the food.

The invention also contains a corresponding two-dimensional cut for producing the container as described above.

Concerning such a cut, the windows are essentially produced in two different ways and may be densely closed by window foil.

According to a first embodiment, a cut is only formed by the paper and metal layer. In this cut prior to applying a window foil, the window or windows are arranged by cutting or stamping. The corresponding cut does not have to be a single cut, but may be a cut web in which several cuts are correspondingly arranged next to each other. Only after producing the corresponding window will the window foil be applied by heat and/or pressure and heat sealed to the interior of the paper layer.

According to a further embodiment, the window may be produced after applying the window foil by cutting or stamping only the paper and metal layer. In this case, the cutting or stamping is performed from the side of the cut that will later be the outer surface of the container. The corresponding cut will only be formed in the container wall or in the cut respectively within metal and paper layer, but not in the window foil hot sealed to the paper layer.

In the following, advantageous embodiments of the invention are described in connection with the drawings.

Figure 1 is a perspective lateral view of a first embodiment of a container according to the invention;

Figure 2 is a perspective lateral view according to figure 1 of a further embodiment of a container according to the invention;

Figure 3 is a lateral view of further container according to the invention with a particular shape of a window;

Figures 4 to 8 are further embodiments with other windows;

Figure 9 is a cut along the line IX-IX of figure 1;

Figure 10 is a cut along the line X-X of figure 1;

Figure 11 is a perspective lateral view of a further embodiment of cut-like container according to the invention, and

Figure 12 is a top view of a two-dimensional cut for a container according to the invention as disclosed in figures 2 to 8.

Figure 1 is a perspective lateral view of a first embodiment of a container 1 according to the invention. This is essentially conical and comprises at its lower end 8, a flag 33 pressed flat that is formed by pressing the container wall 5 flat in this region. The flag 33 is used as a handle of the container 1. A corresponding food filled in the interior of the container 1 can be pressed out by squeezing the container 1 starting at flag 33 in direction to container opening 7 at an upper end 6 of the container 1.

Similarly to a belt, container 1 comprises a window 10 that extends at least partially in the container wall 5 in circumferential direction of the container 1.

The container opening 7 is surrounded by an opening rim 13 that is rolled radially outwardly in the illustrated example.

In figure 2 a second embodiment of a container 1, according to the invention, is illustrated in a perspective lateral view. This container is different from the container according to figure 1 essentially be the missing of flag 33 at lower end 8. Within container 1, food 2 similar to figure 1 is arranged up to a filling level 28. In the region of the food 2, five windows 10 are arranged. Those are circular and are formed in longitudinal direction 23 of the container with decreasing radius in direction to lower end 8. The corresponding windows 10 are arranged vertically above each other in the container wall 5.

As a further embodiment, further windows 10 may be arranged in container 1 according to figure 2 displaced in circumferential direction 24 of container wall 5 in view of the visible windows. An example of such an arrangement is a displacement by 90° or 180°.

In figure 3 to 8, further embodiments of container 1, according to the invention, are illustrated that are different than container 1 according to figure 1 in shape, arrangement and number of windows 10. The same reference numerals are used for the same parts in each and will be mentioned partially only in connection with one figure.

In the embodiment according to figure 3 two windows 10 of an essentially square shape are inclined and displaced parallel to each other in vertical direction relative to longitudinal direction 23 of the container, see figure 2. The window arranged closer to lower end 8 has smaller length in circumferential direction 24.

In figure 4, an essentially trapezoid-shaped window 10 is arranged in container wall 5. This extends with its non-parallel side, parallel to the conical shape of the container, whereas the parallel sides of the trapezoid extends in circumferential direction 24, see also figure 2.

In the embodiment according to figure 4, lid 22 is inserted in the container opening 7. This lid includes a rim flange extending in an upper direction along the rim, wherein it is glued to the inner surface of the container wall 5.

In figure 5 the window 10 has an oval form extending in longitudinal direction of the container. Laterally adjacent to window 10, a scale 34 is printed on the outer surface 20 of the further, outer layer 4, see also figure 9 of the container 1. A corresponding print may also be applied directly on window 10.

According to the embodiment of figure 5, a lid 22 similar to figure 4 is provided. This is different to the lid described above in that the rim flange is arranged and held between an inner folded opening rim 13 and inner surface 14, see again figure 9.

In figure 6 the window has a spiral-like form extending along the longitudinal direction 23 of the container.

In the embodiment according to figure 7, the window essentially extends in circumferential direction 24 and is displaced from an overlap area 17 as well as from upper and lower ends 6, 8, see also figures 1 and 2 of container 1. The overlap area 17 is formed by lateral edges which are partially placed on each other and overlap, see also figure 12, of a two-dimensional cut for such a container 1. In this overlap area 17, the cut is connected to itself. For such a connection additional adhesive may be applied. The connection may be performed by applying heat and/or pressure in the overlap area.

Alternative to such a connection with overlap, also connection of corresponding lateral edges 15 and 16, see figure 12, of the two-dimensional cut 9 with a contact joint of these lateral edges is possible.

According to the embodiment of figure 7, the container wall 5 comprises a tearing handle 27 touching an outer surface. Between this and a visible edge 15 of the two-dimensional cut on the outer surface of the container notches 35 are provided which support the tearing of the container wall for opening of the container 1. Such tearing may be supported by respective tearing lines 25, 26, wherein the tearing is essentially performed along such tearing lines 25, 26.

In figure 7 the upper tearing line 26 extends parallel to the opening rim 13 in between this and an upper edge of window 10. The second tearing line 25 extends from corresponding notch 35 first inclined to the bottom essentially to the lower edge of window 10 wherein the lower edge of the window foil 10 is sealed in this region, see also figure 9, and is used for determining the tearing line 25.

Other tearing lines 25, 26 may also be formed by material thinning in the container wall 5 or by partial cutting of corresponding layers of the container wall.

In figure 8, container 1 has a flat lid 22 with an upwardly inclined extending lid handle 29. This lid 22 is applied to the free edge of the opening rim 13 and fixed there.

Windows 10, illustrated in figure 8, have different geometrical shapes. The arrangement of these windows correspond to a face.

In figure 9, a cut along line IX-IX of figure 1 is illustrated.

The cut is in particular through a window 10. Container wall 5 is in particular formed by two layers. An inner layer 3 is a paper layer and an outer layer 4 is a metal layer, in particular an aluminum layer. Layers 3 and 4 are usually congruent to each other, such that they cover each other in the cut 9 according to figure 12. The layers are connected to each other by an adhesive and by applying heat and/or pressure and are in particular laminated.

The metal layer 4 can have printing on its outer surface 20. This print may be used for advertising reasons or for designating the contents of the container 1. Furthermore, the printing may have a three-dimensional effect, may be a hologram, may be single-colored or multi-colored, or the like.

A corresponding print may also be applied to the window 10, wherein such printing is, for example, only then visible if a corresponding food is withdrawn from container 1 to such an amount that it is only arranged below window 10. For example, this may be realized in such a way that the color of printing 10 and the color of the filled-in food are the same.

On the interior surface 14 of container 1 or paper layer 3 along a rim area of window 10 a transparent or translucent window foil 11 is arranged. Along the corresponding rim this foil is sealed to the inner surface 14 of paper layer 3 within a hot sealing region 32. The corresponding window 10 is surrounded by cutting edges 30, 31 of metal layer 4 and paper layer 3.

It is also possible that metal layer 4 extends around the corresponding cutting edge of paper layer 3, essentially on inner surface 14.

In figure 10 a cut along line X-X of figure 1 is illustrated. In the area of container opening 7 the opening rim 30 is rolled radially outward, wherein in this area the corresponding container wall 5 is made of paper layer 3 and metal layer 4. By rolling of the opening rim 30, corresponding characteristics of the container wall 5, such as fluid tightness or the like, are not changed.

In figure 11, container 1 which is essentially cup-like, is illustrated as a further embodiment. This has a window 10 extending essentially over the total height of the container 1 and inclined.

Container 1 is closed at its lower end 8 by a bottom insert 21 in position opposite to the container opening 7. Such a bottom insert usually includes an edge flange 37 extending perpendicularly upward from bottom surface 36. This edge flange 37 is clamped between a wall rim of container wall 5 folded upward and an inner surface 14 of the container wall 5 and is sealingly held therebetween.

In figure 12 a top view of an embodiment of a two-dimensional cut 9 for a container in the shape of embodiments according to figures 2 to 8 is illustrated. Corresponding two-dimensional cuts for the embodiments according to figure 1 or figure 11 are obvious.

The two-dimensional cut according to figure 9 comprises a left and a right lateral edge 15, 16, as well as upper and lower edges 19 and 18. Concerning the left and the right lateral edges 15, 16, it is already said that they are used for a joint or for the overlap area 17, see figure 7.

The upper edge 18 of cut 9 forms a corresponding opening rim 13, see the previous figures. This opening rim may be rolled, see also figure 10, folded, or shaped in another form.

According to the cut 9, three windows 10 are arranged essentially parallel to each other. Those windows are sealed by corresponding window foils 11 which are hot sealed along rims 12 of the window with inner surface 14 of paper layer 3.

According to the embodiment illustrated, a window foil 11 for a window 10 and a further window foil 11 for a second window 10 are used. It is also possible that corresponding window foils 11 are used separately for each window 10 or only one window foil 11 for all windows 10, see also the further embodiments. In the region of the corresponding window

10 and along its window rim 12 at least hot seal in corresponding hot seal areas is performed.

It is also possible that a corresponding window foil 11 extends along the total inner surface 14 of paper layer 3 and is hot sealed onto paper layer 3 exterior to windows 10.

By arrangement of the window foil for one window according to figure 12 the window foil 11 and window 10 may be geometrically similar. This means that the geometric shapes of window foil and window are the same, but the dimensions of the window foil 11 are bigger, such that it extends above the window 10 and may be hot sealed along its window rims 12.

In figure 12 there is, see also figure 7, a tearing handle 27 with corresponding notches 35 additionally illustrated.

For all embodiments according to the invention, see figures 1 to 8, 11 and 12, windows 10 are arranged in a region of container 1 which has curved container wall 5. The stability and stiffness of container 1 is according to this curvature of the container wall sufficiently high, even in case of thin layers, in particular thin paper layer 3 and thing metal layer 4. Such a container may be used for example for filling in food and handling and storing such a container. The stability and stiffness is improved by the hot sealed window foils 11. These extend analogue to corresponding windows 10 also in the curved regions of container wall 5. Furthermore, corresponding edges of the window foil 11 may be used as tearing lines 25, 26, see also figure 7. Accordingly, separately arranged tearing lines 25, 26 in the container wall 5 are not necessary.

Illustrated embodiments of container 1 are all essentially rotationally symmetric. It is, however, also possible, see in particular container 1 according to figure 1, that this has oval cross sections as such an oval cross section is easily squeezable.

Concerning cut 9 according to figure 12 and also similar cuts for other embodiments of shapes of containers, it is further mentioned that there are essentially two production methods.

According to a first production example, a container wall 5 with paper layer 3 and metal layer 4 is a laminate. In this laminate, corresponding window 10 or also several of those

windows, are formed by cutting or stamping. Thereafter, the window, or windows, is densely closed along their rims by arranging window foils 11 by hot sealing.

According to a second production example, the respective cut 9 in form of container wall of paper layer 3, metal layer 4, and window foil 11 is used. Then, corresponding window 10 is formed by cutting or stamping using a Kiss-cut method, wherein according to this method the window is only produced in paper layer and metal layer, whereas the window foil is not touched.

For the window foil different and in particular thermoplastic resins are possible, which are transparent or translucent. One example is polyethylene.

It is also possible that the bottom insert 21 or lid 22 according to the different embodiments is at least partially formed of transparent or translucent material. In this way, the contents of container 1 can also be inspected from container opening 7 or from the bottom through the bottom of the container.

According to a further embodiment of the invention, the tearing handle 27, see for example figure 12, is not formed by paper layer 3 and metal layer 4, but may also be realized as an extension of window foil 11. In this way, tearing of the container wall along tearing lines 25, 26 defined by edges of the window foil 11 is simplified.

Such a tearing handle 27 is, for example, guided through between lateral edges 15 and 16 of cut 9 connected to each other to the outer surface of container 1.

CLAIMS

1. Container (1) for receiving food with a container wall (5) comprising at least a paper layer (3) and a further layer (4), which container (1) has a container opening (7) at its upper end (6) and is closed at its end (8) opposite to the container opening, wherein at least the container wall (5) is formed by a two-dimensional cut (9), which cut is connected to itself to form a continuous container wall, and wherein the container wall (5) has at least one window (10), which is closed by a transparent or translucent window foil (11), **characterized in that** the container wall (5) is curved at least partially in the region of the window (10) and the window foil is hot sealed with a paper layer (3) for sealing the window (10).

2. Container according to claim 1, **characterized in that** the window foil (11) and paper layer (3) are hot sealed to each other at least in the region of the window rim (12).

3. Container according to claim 1 or 2, **characterized in that** the further layer (4) is a metal layer, in particular an aluminum layer.

4. Container according to one of the previous claims, **characterized in that** the container opening (7) comprises an opening rim (13) formed by an upper edge (18) of cut (9).

5. Container according to one of the previous claims, **characterized in that** the opening rim (13) is rolled in, folded, or flanged without essentially changing characteristics of the container wall (5).

6. Container according to one of the previous claims, **characterized in that** the further layer (4) and paper layer (3) are connected to each other by an adhesive and are in particular laminated.

7. Container according to one of the previous claims, **characterized in that** the further layer (4) and paper layer (3) are essentially congruent to each other.

8. Container according to one of the previous claims, **characterized in that** the container (1) is essentially rotationally symmetric.

9. Container according to one of the previous claims, **characterized in that** the window foil (11) is essentially geometrically similar to the window (10).

10. Container according to one of the previous claims, **characterized in that** the window foil (11) is sealingly assigned to several windows (10).

11. Container according to one of the previous claims, **characterized in that** the window foil (11) is hot sealed essentially on the total inner surface (14) of the paper layer (3).

12. Container according to one of the previous claims, **characterized in that** the window foil (11) is made of polyethylene (PE), polypropylene (PP), polyvinylchloride (PVC), polystyrene (PS), polyamide (PA), PET, or another, in particular thermoplastic resin.

13. Container according to one of the previous claims, **characterized in that** the connection of the cut (9) with itself is produced by heat and/or pressure and/or using an adhesive.

14. Container according to one of the previous claims, **characterized in that** the cut (9) is connected to itself along a joint of lateral edges (15,16).

15. Container according to one of the previous claims, **characterized in that** the cut (9) is connected with itself along an overlap area (17) extending in particular in longitudinal direction of the container.

16. Container according to one of the previous claims, **characterized in that** the edges (15,16,18,19) of the cut (9) are fluid tight.

17. Container according to one of the previous claims, **characterized in that** the metal layer (4) comprises a printing on its outer surface (20).

18. Container according to one of the previous claims, **characterized in that** the printing has a three-dimensional effect.

19. Container according to one of the previous claims, **characterized in that** the printing is a hologram.

20. Container according to one of the previous claims, **characterized in that** the printing is applied on a window (10).

21. Container according to one of the previous claims, **characterized in that** the printing of the window is visible only after at least partial withdrawal of the food.

22. Container according to one of the previous claims, **characterized in that** the closed end (8) of the container (1) comprises a bottom insert (21), which insert and possibly also a lid (22) closing the container opening (7) are in particular formed of an at least partially transparent material.

23. Container according to one of the previous claims, **characterized in that** the container (1) is stackable and de-stackable.

24. Container according to one of the previous claims, **characterized in that** the window (10) extends essentially in longitudinal direction (23) of the container.

25. Container according to one of the previous claims, **characterized in that** the window (10) is angled, in particular square, oval, essentially round, essentially rhombic, trapezoid, or formed in a similar way.

26. Container according to one of the previous claims, **characterized in that** at least two windows (10) are arranged side by side in circumferential direction (24) of the container and/or are arranged above each other in longitudinal direction (23) of the container.

27. Container according to one of the previous claims, **characterized in that** the window (10) is essentially spirally formed around the longitudinal direction (23) of the container.

28. Container according to one of the previous claims, **characterized in that** container (1) comprises at least one tearing line (25,26).

29. Container according to one of the previous claims, **characterized in that** the tearing line (25,26) has a tearing handle (27) assigned thereto.

30. Container according to one of the previous claims, **characterized in that** the tearing line (25,26) extends essentially along upper and/or lower rim of the window (10).

31. Container according to one of the previous claims, **characterized in that** the tearing handle (27) is arranged at the window foil (11) and is possibly formed by same.

32. Container according to one of the previous claims, **characterized in that** the tearing line extends along at least one edge of the window foil (11).

33. Container according to one of the previous claims, **characterized in that** the further layer (4) is a particularly fluid tight resin layer.

34. Cut (9) for producing a container (1) according to one of the previous claims.

35. Cut according to claim 34, **characterized in that** the window (10) is cut or stamped prior to applying the window foil (11).

36. Cut according to claim 34, **characterized in that** the window (10) is produced after applying the window foil (11) by cutting or stamping of only paper and metal layer (3,4).

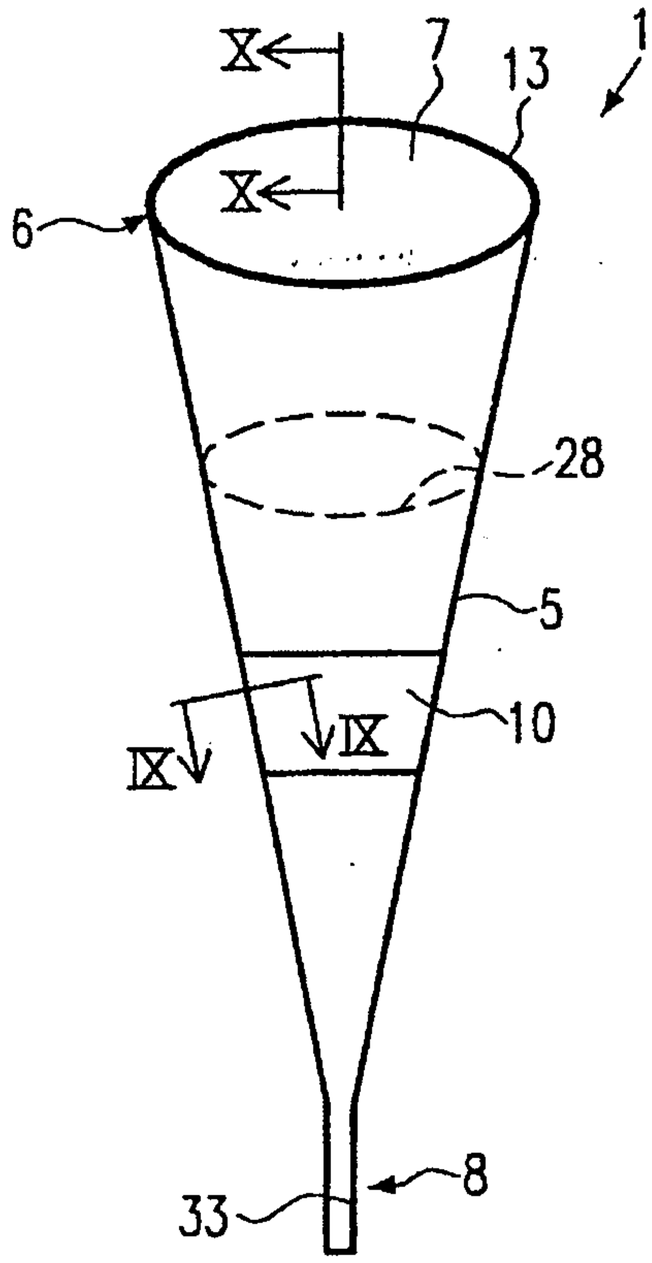


Fig.1

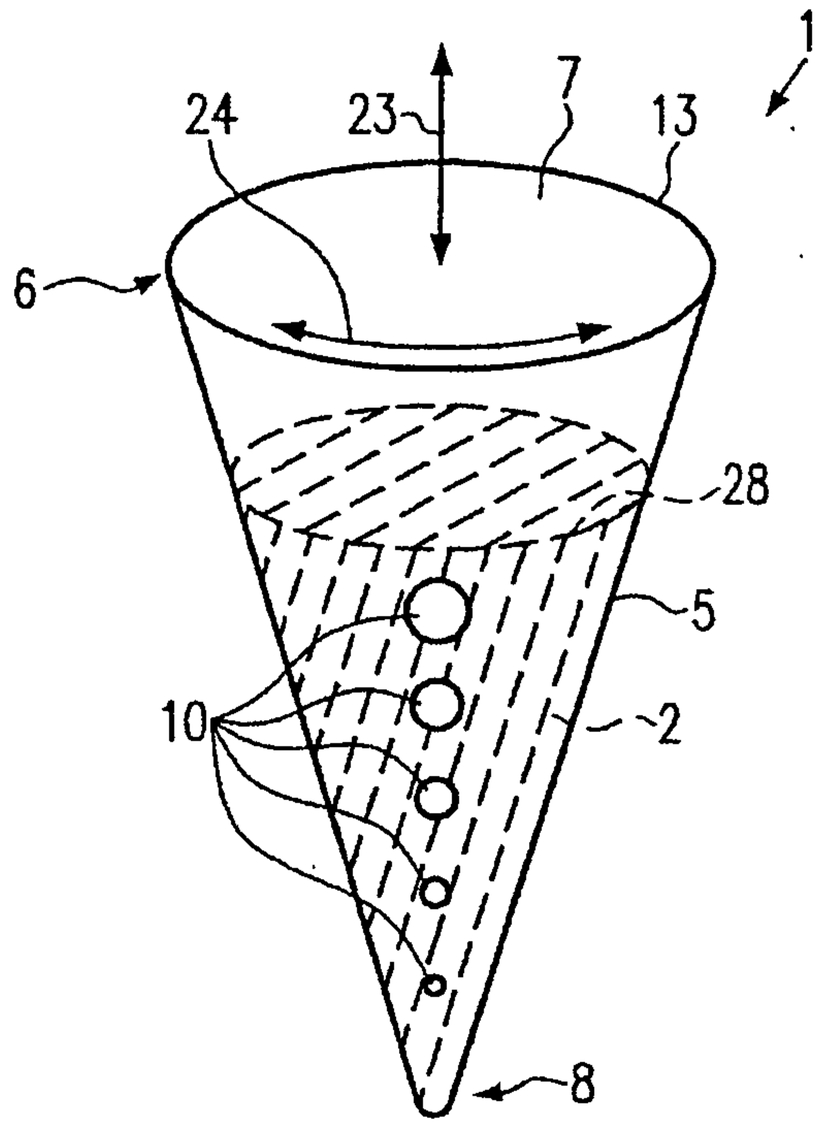


Fig.2

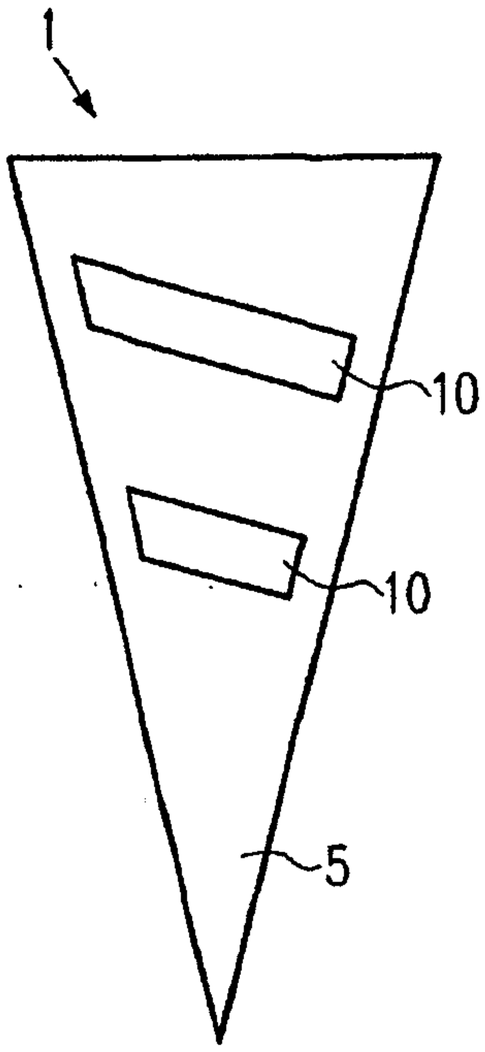


Fig.3

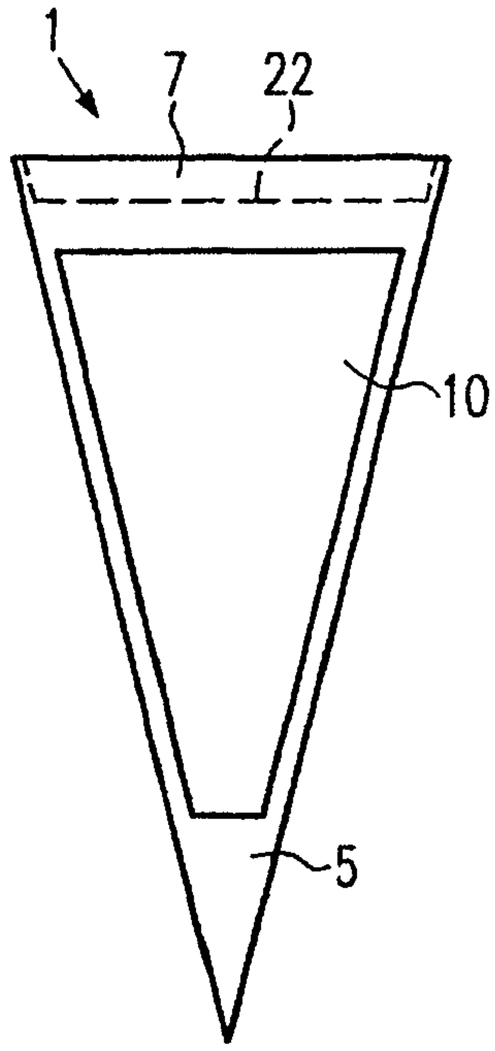


Fig.4

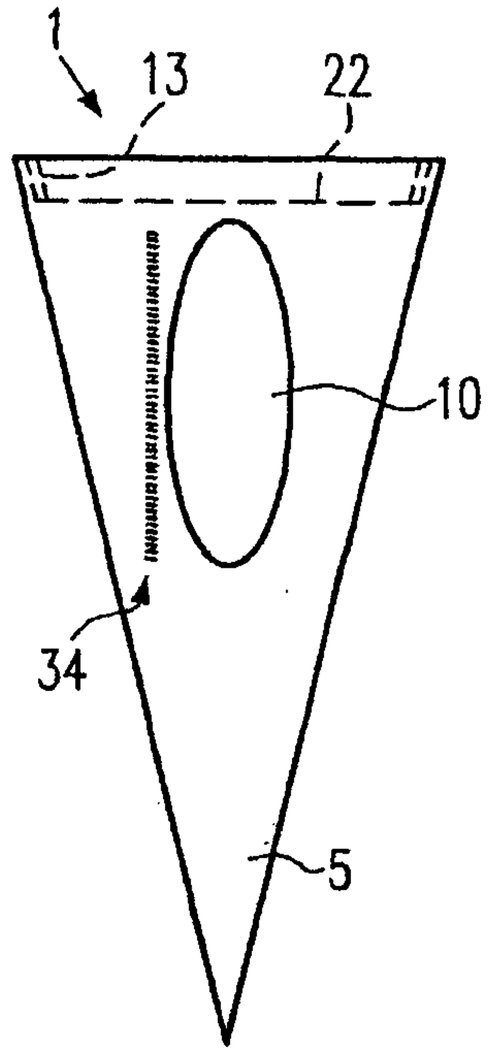


Fig.5

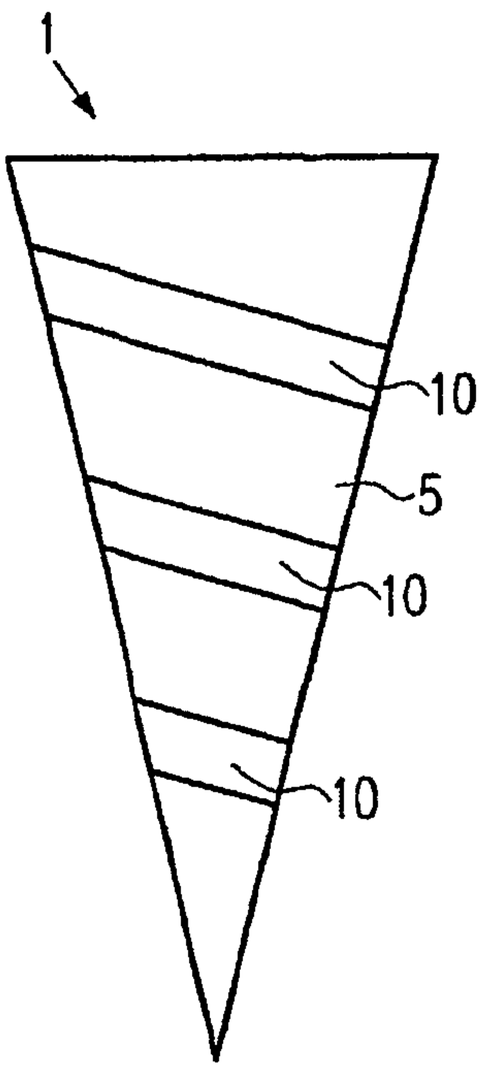


Fig.6

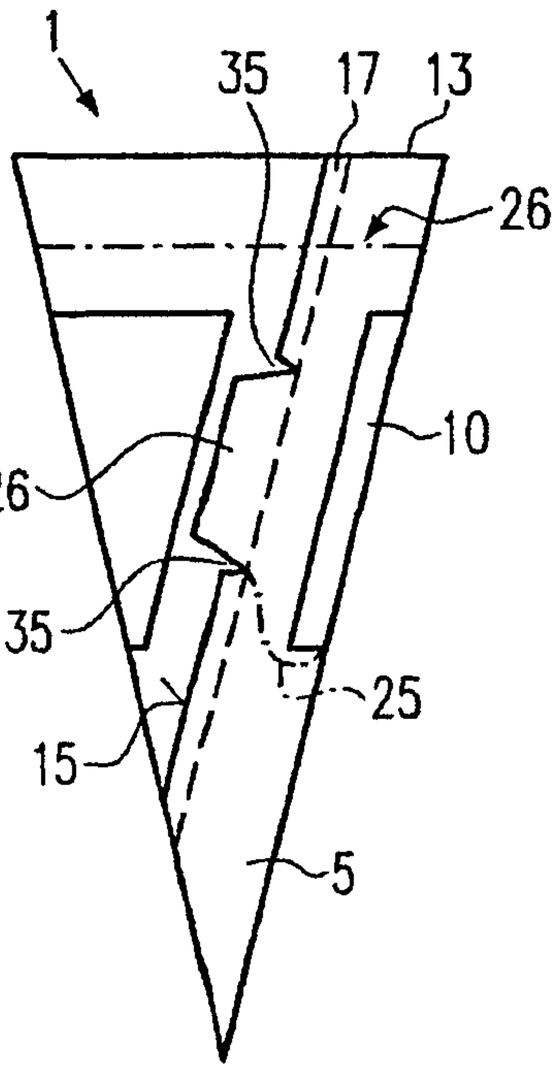


Fig.7

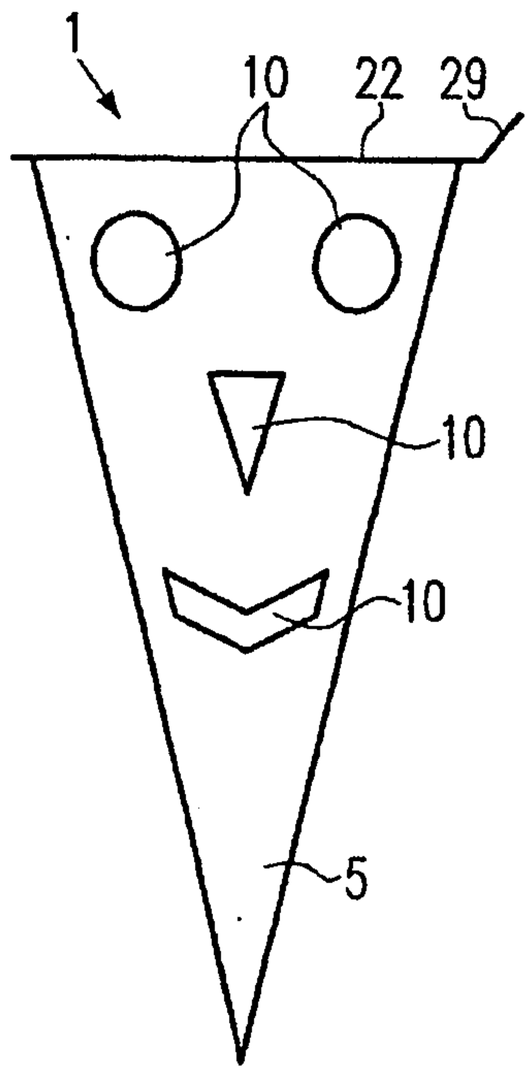


Fig.8

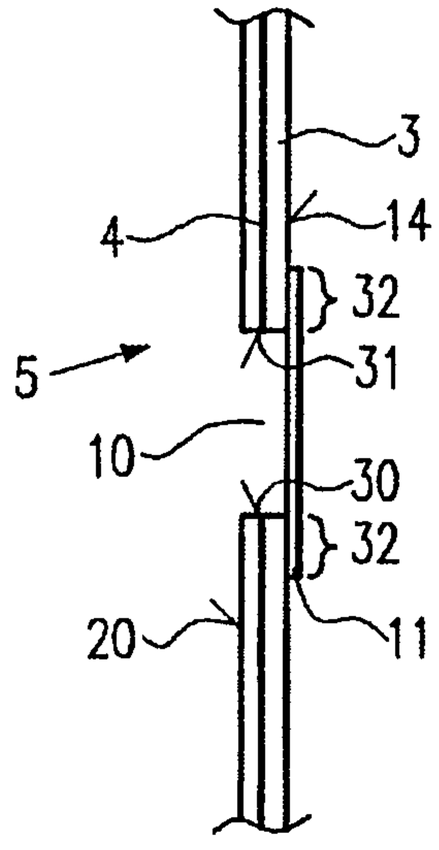


Fig.9

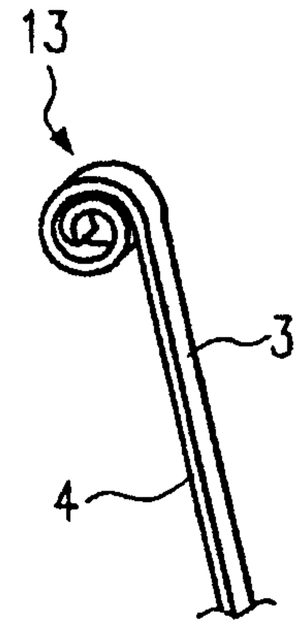


Fig.10

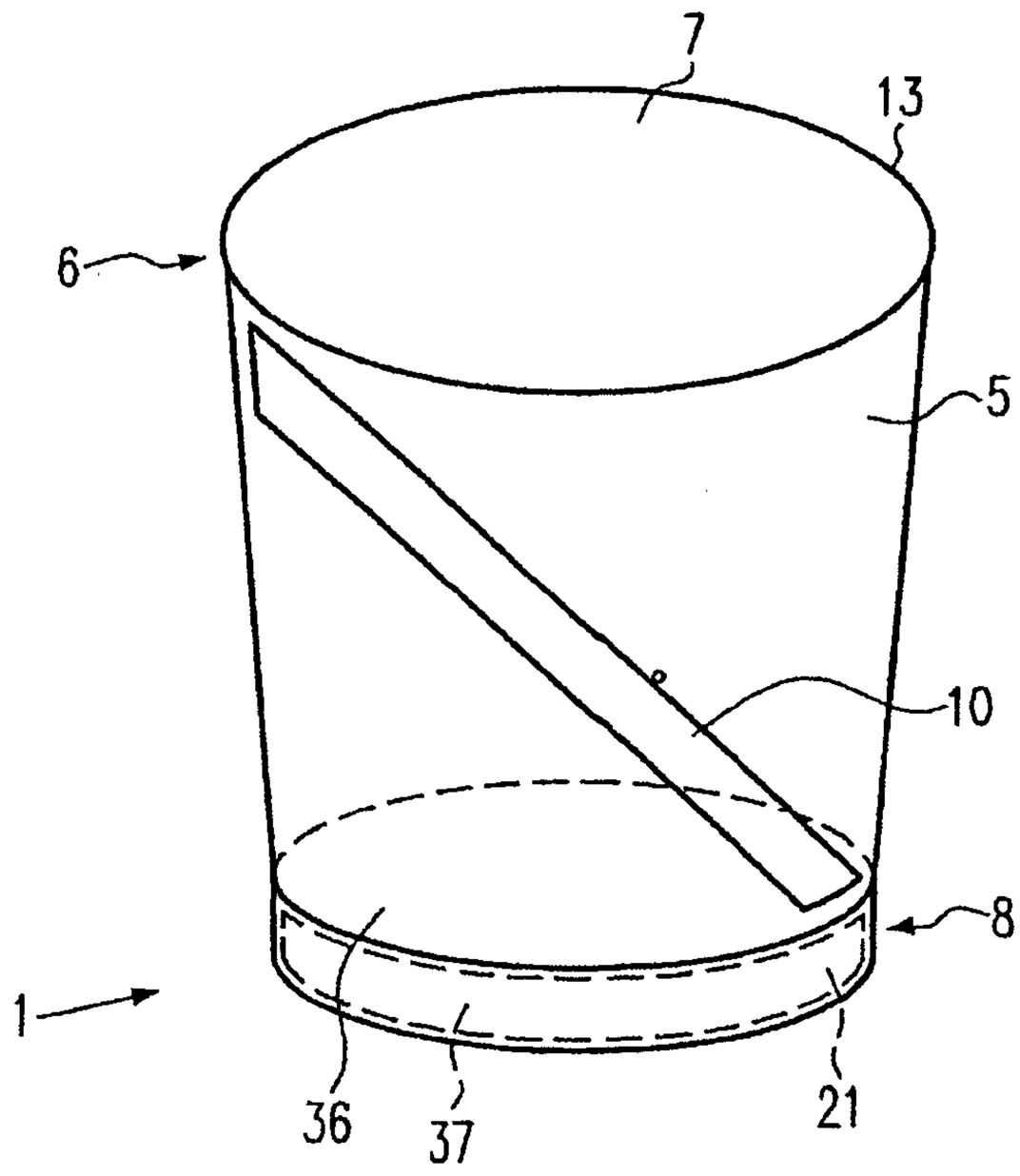


Fig.11

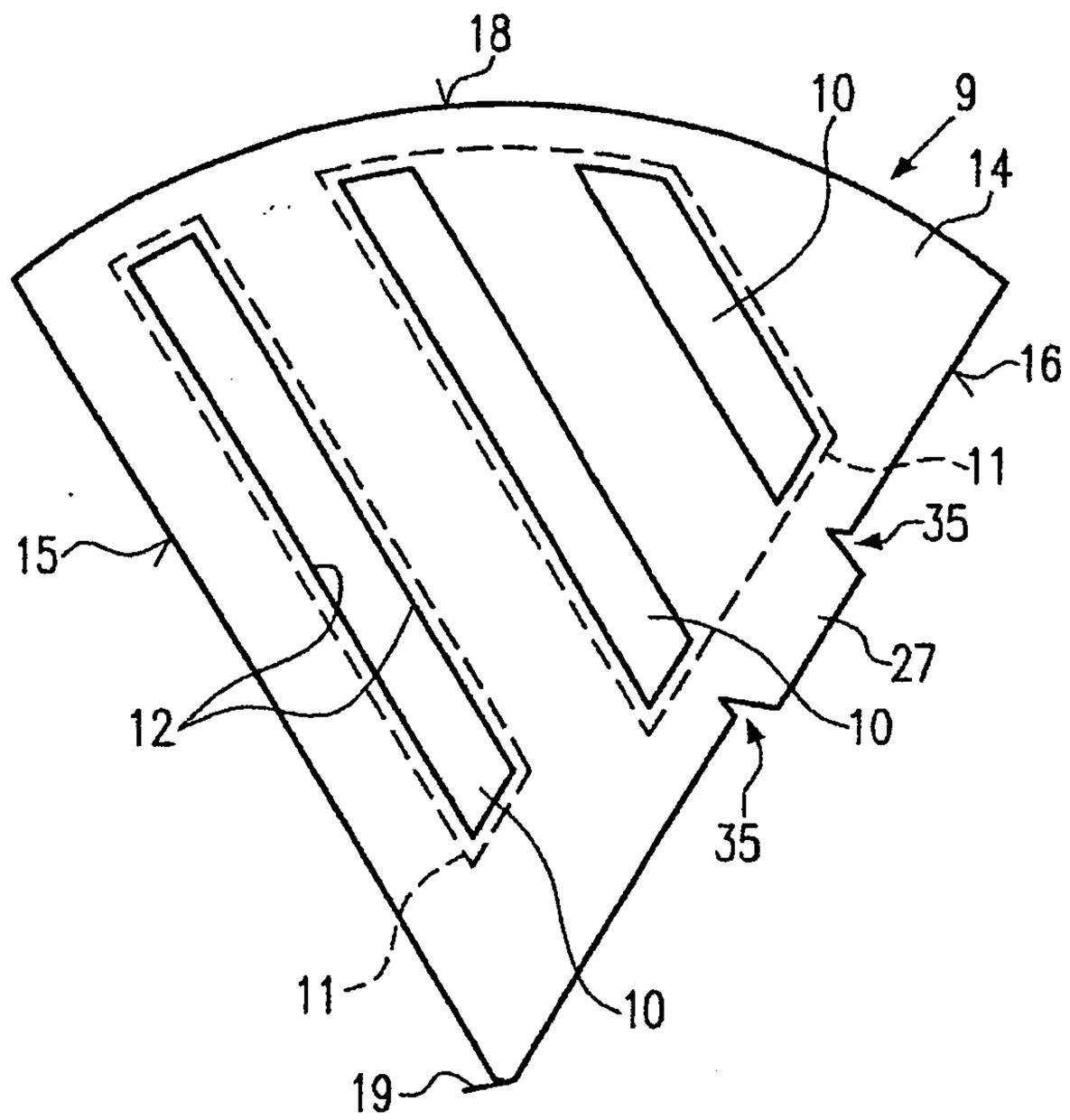
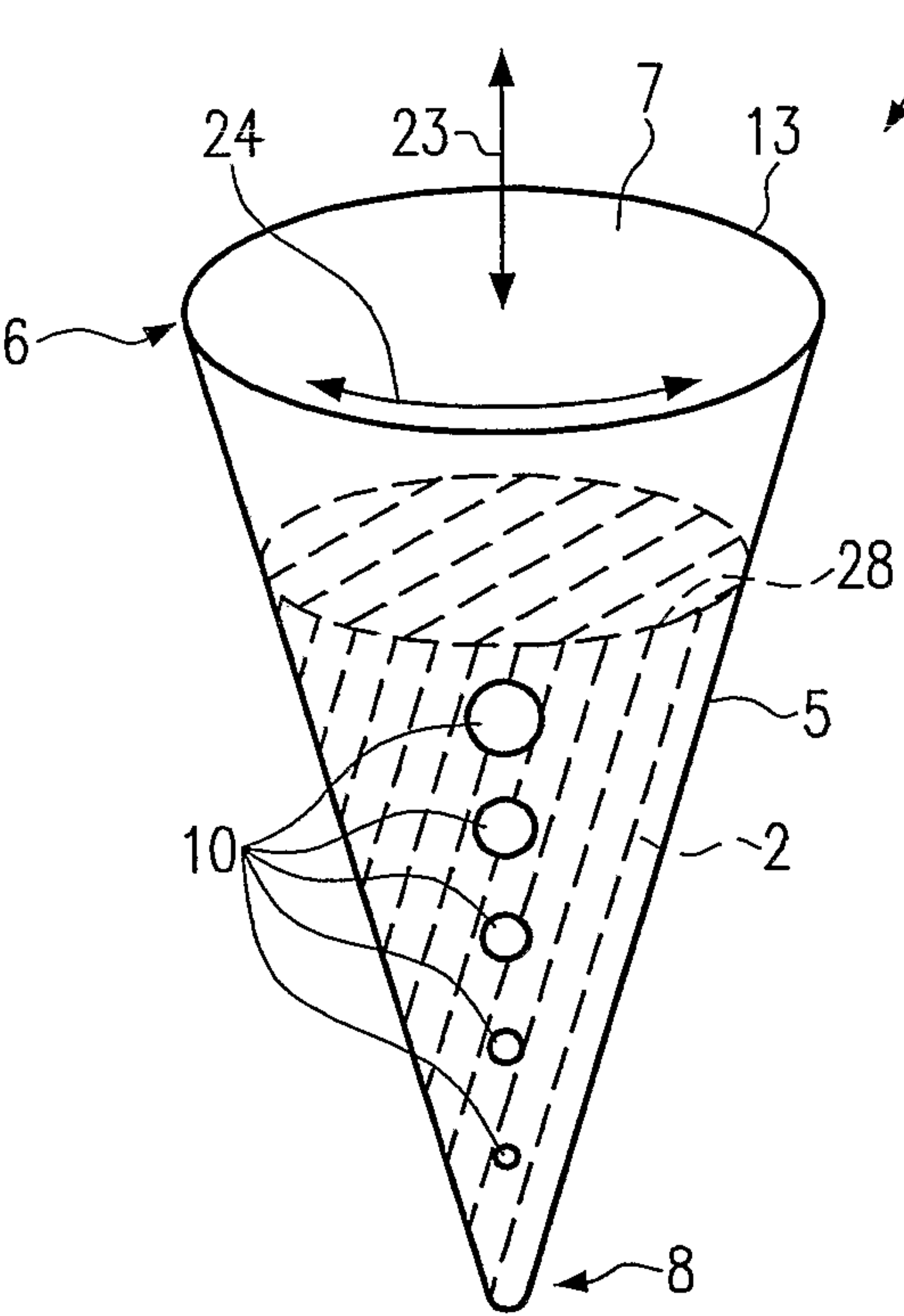


Fig.12


1
24
23
7
13
6
28
5
10
2
8