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OUTER SHAPE AND METHOD FOR
PRODUCING A PACKAGING UNIT HAVING
SAID TYPE OF PACKAGING BODY**May 31, 2013 (CH) 1042/13
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CH-8272 Ermatingen (CH)****Publication Classification**(51) **Int. Cl.**
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May 31, 2013 (CH) 1041/13(57) **ABSTRACT**

The invention relates to a packaging body (13, 131, 132) having an outer shape which can roll. Said packaging body (13, 131, 132) comprises a chamber for the content or a cavity, the shape of which is adapted or can be adapted to the shape of the contents of the packaging (11) which are to be received in the packaging body (13, 131, 132). Said claimed packaging body (13, 131, 132) enables a packaging unit (10), which is easy to transport by rolling, to be produced in a particularly simple manner.

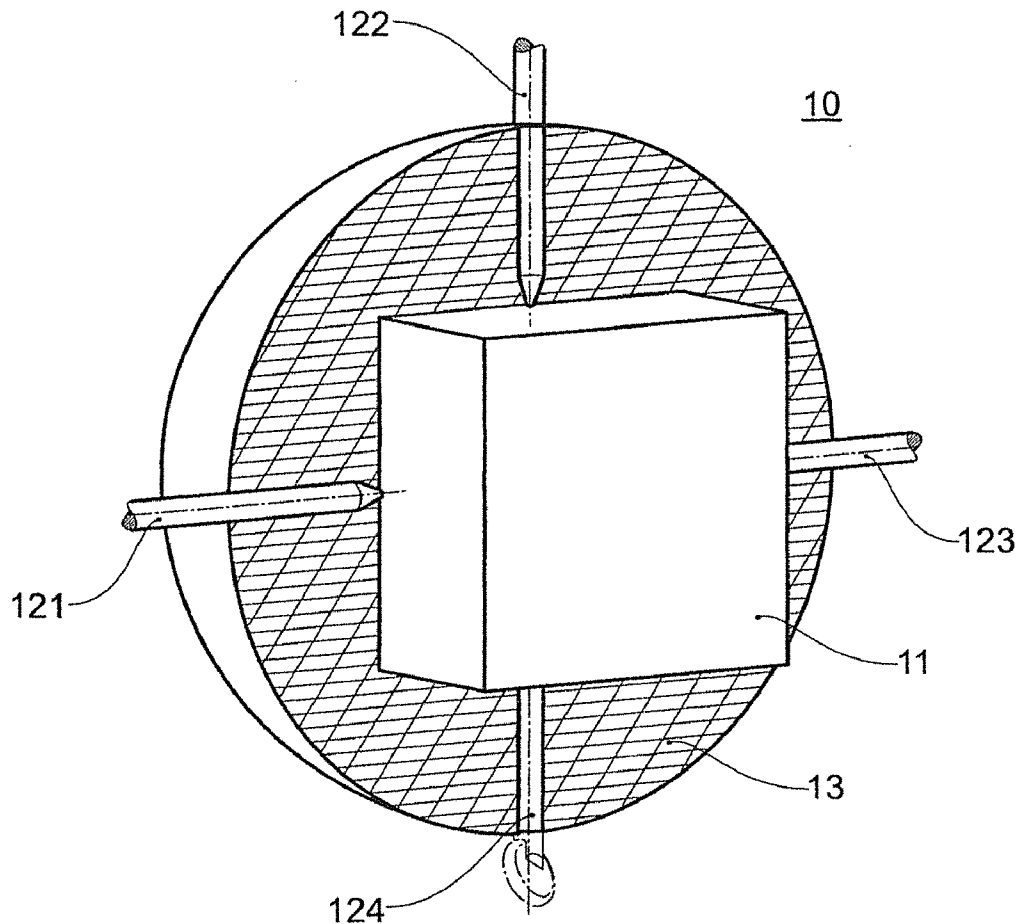


Fig.1

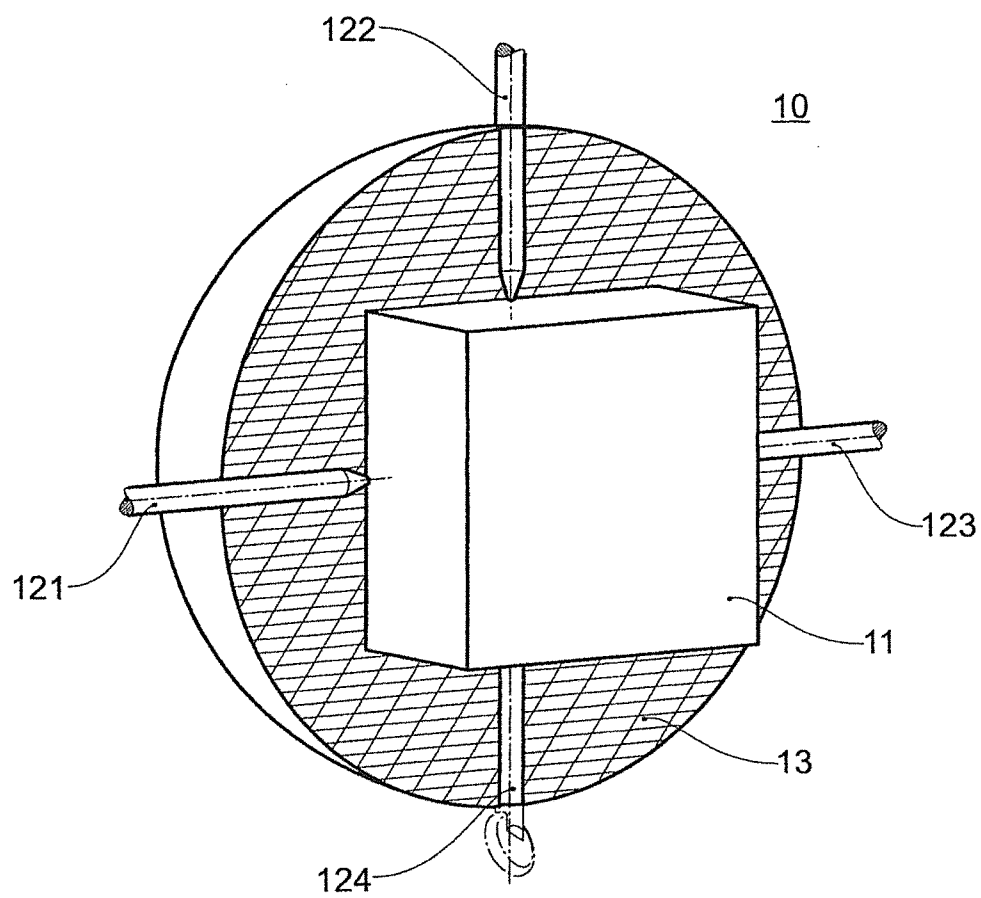


Fig.2

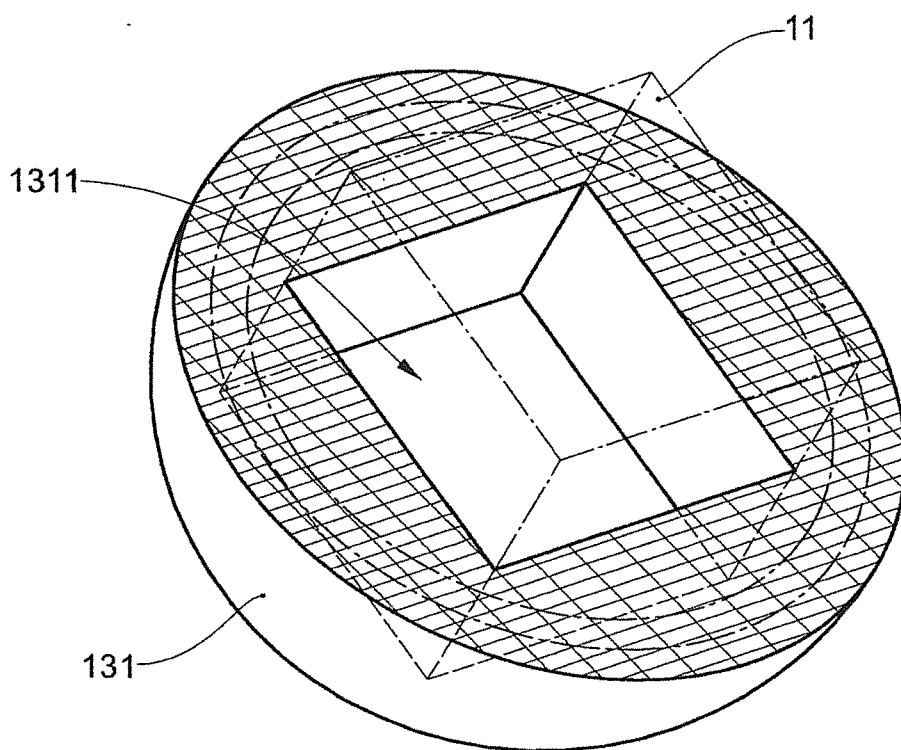


Fig.3

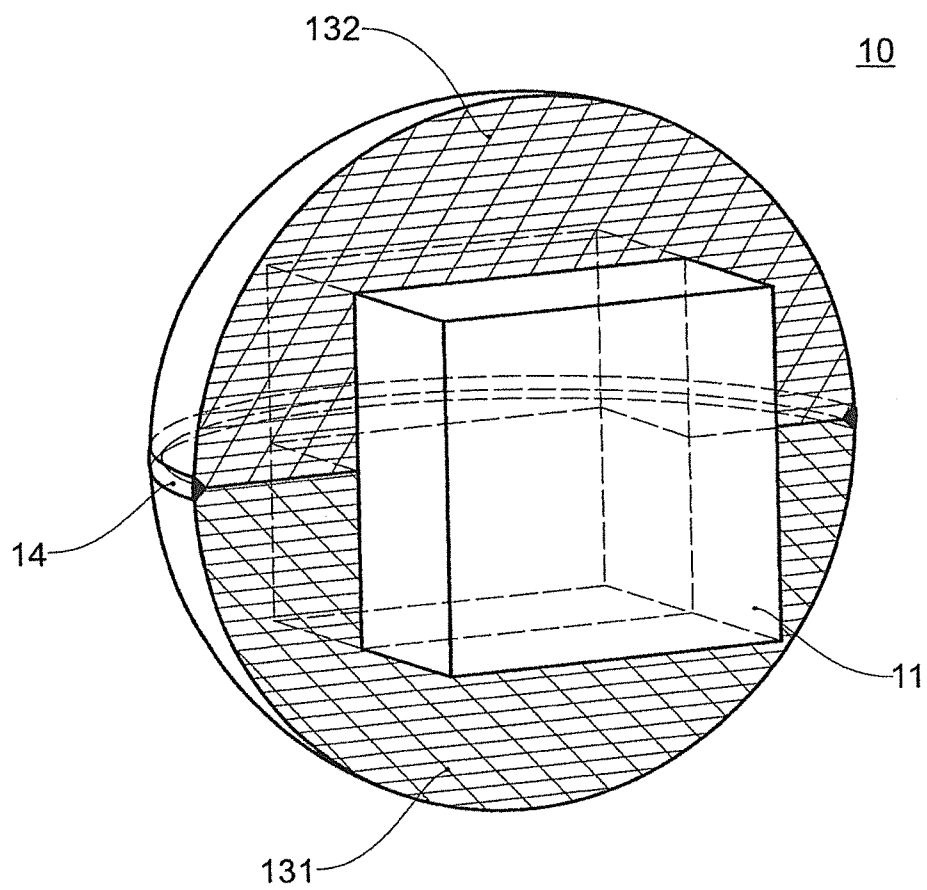


Fig.4

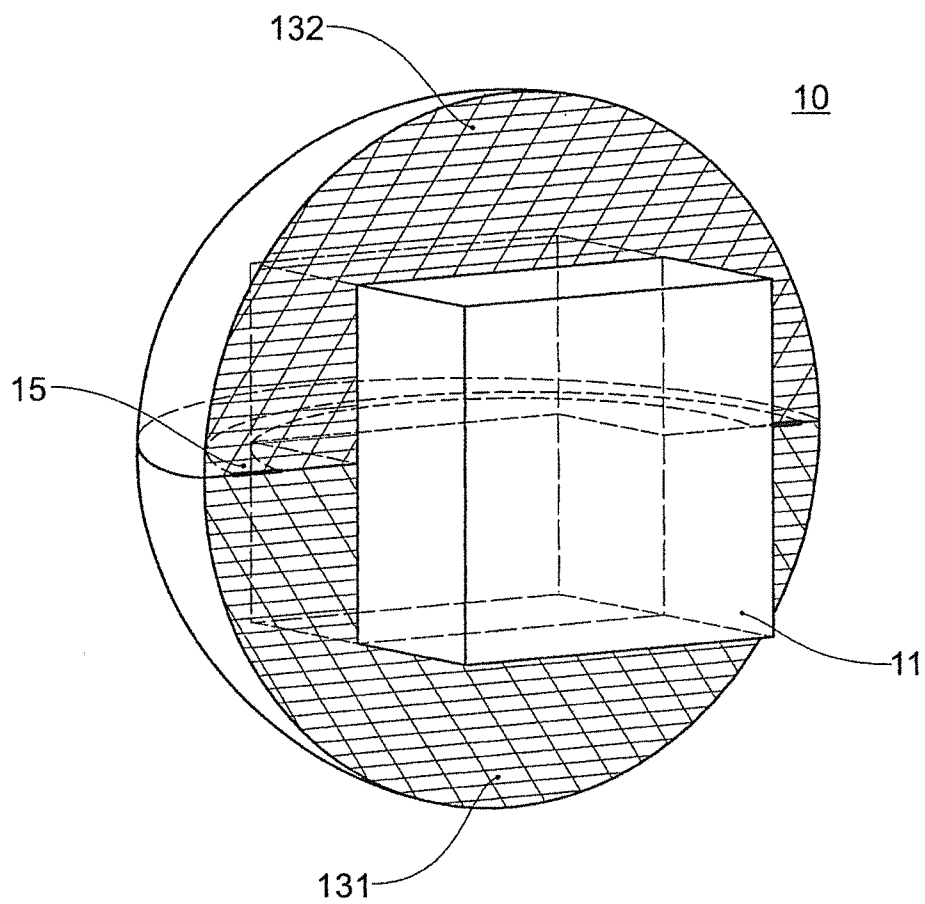


Fig.5

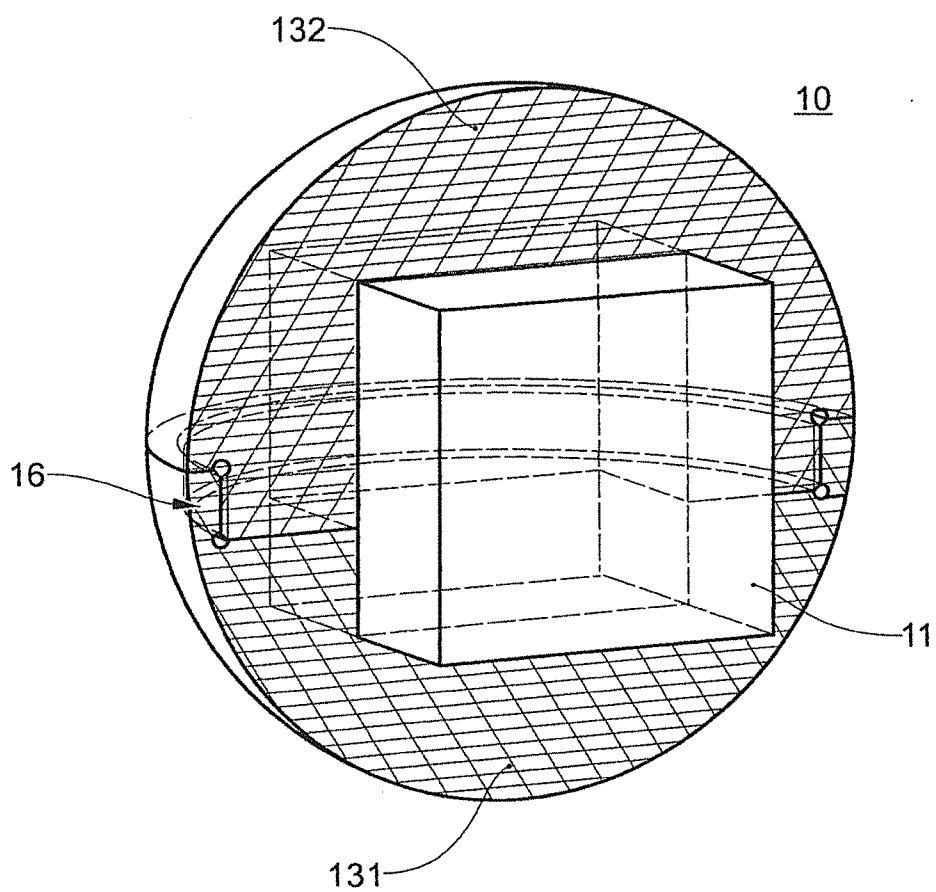


Fig.6

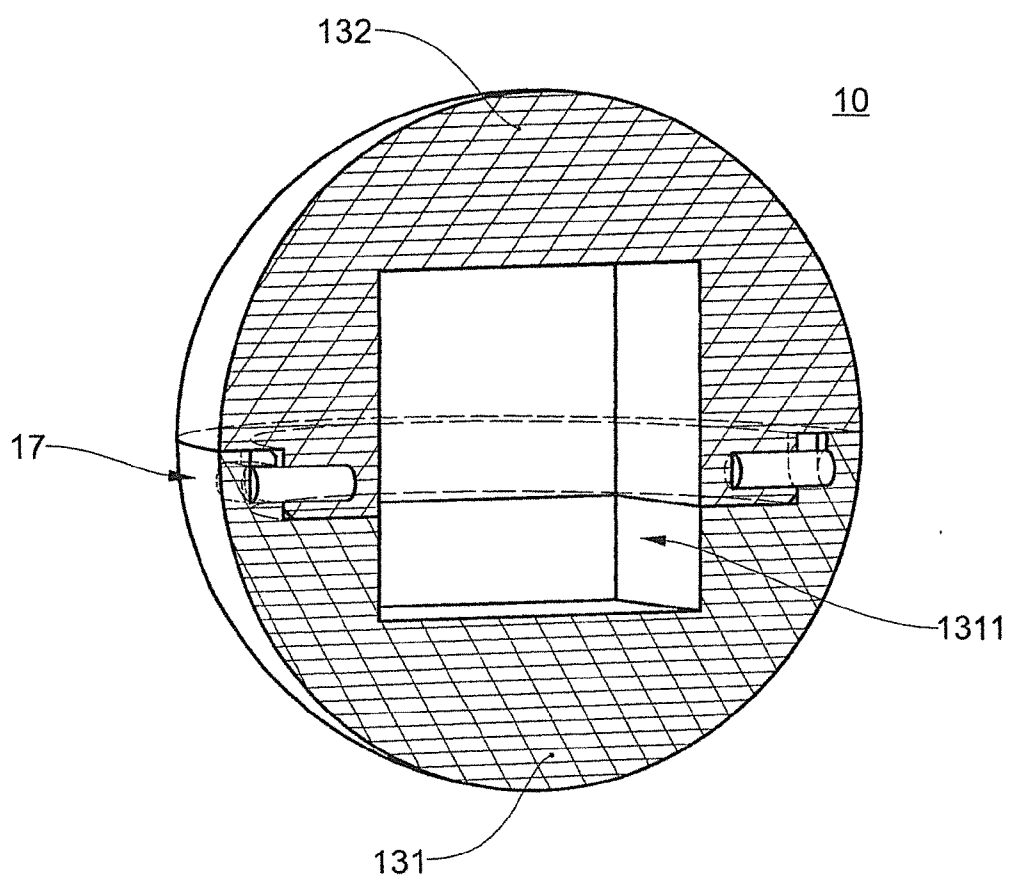


Fig.7

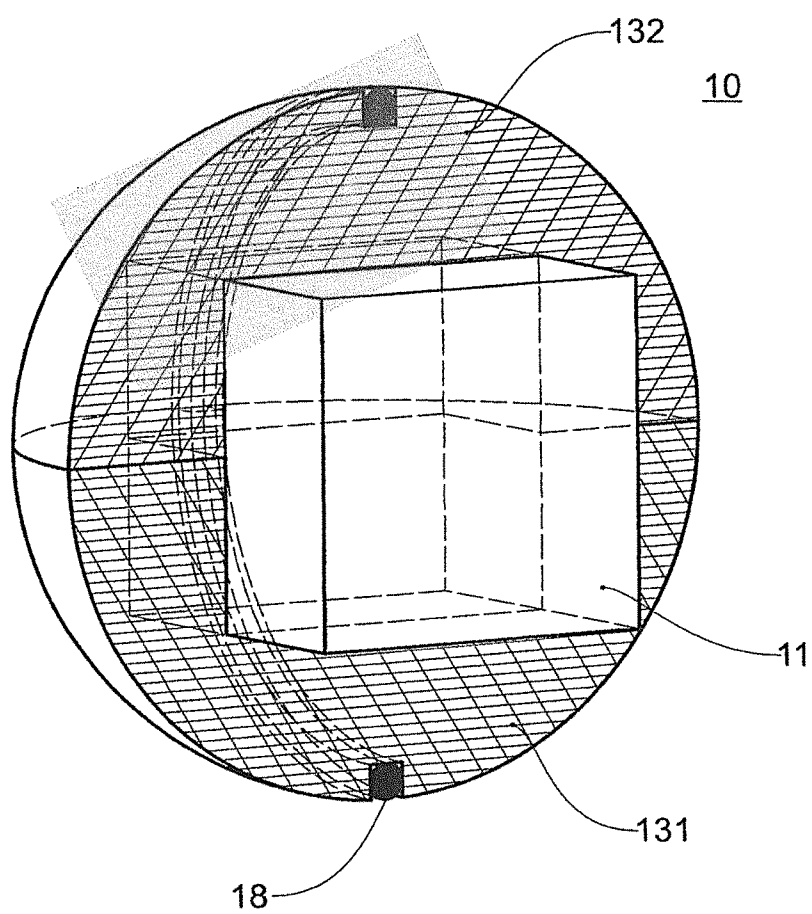


Fig.8

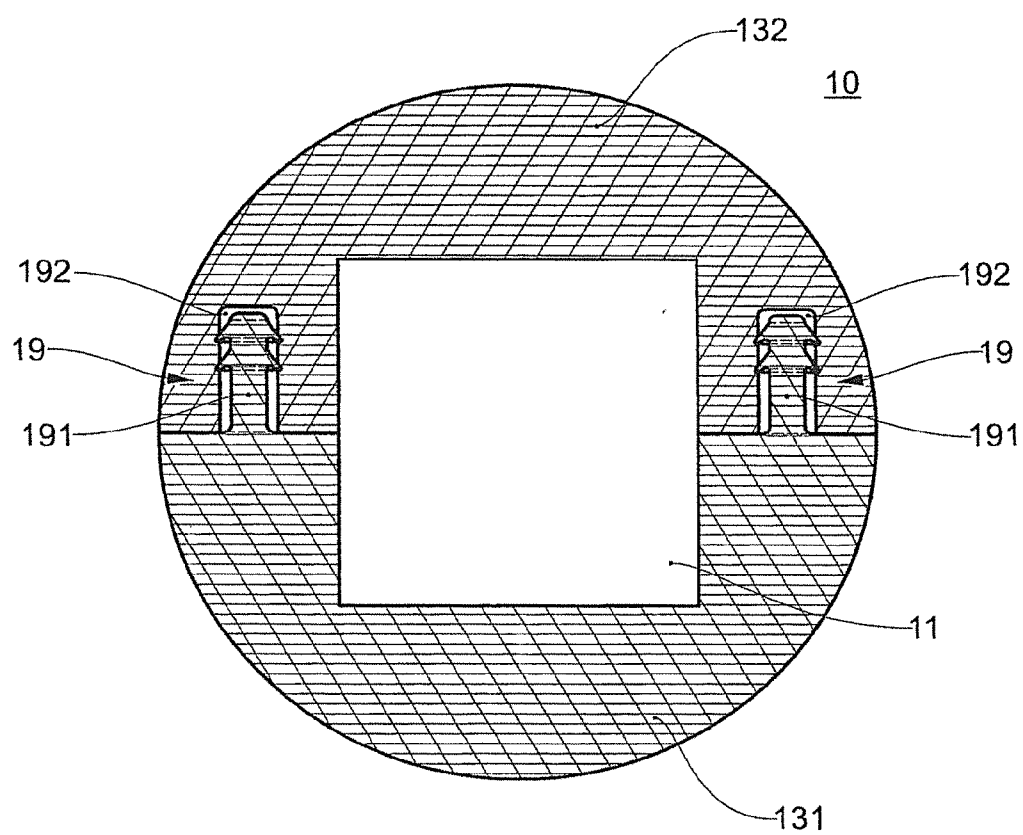


Fig.9

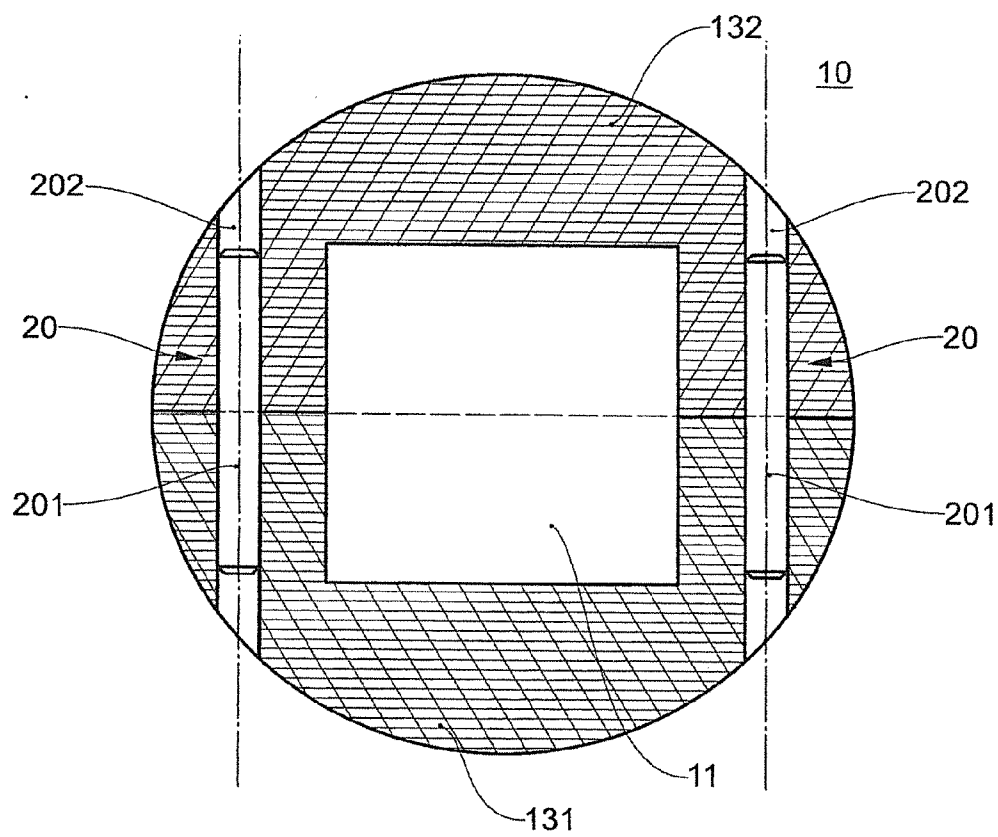


Fig.10

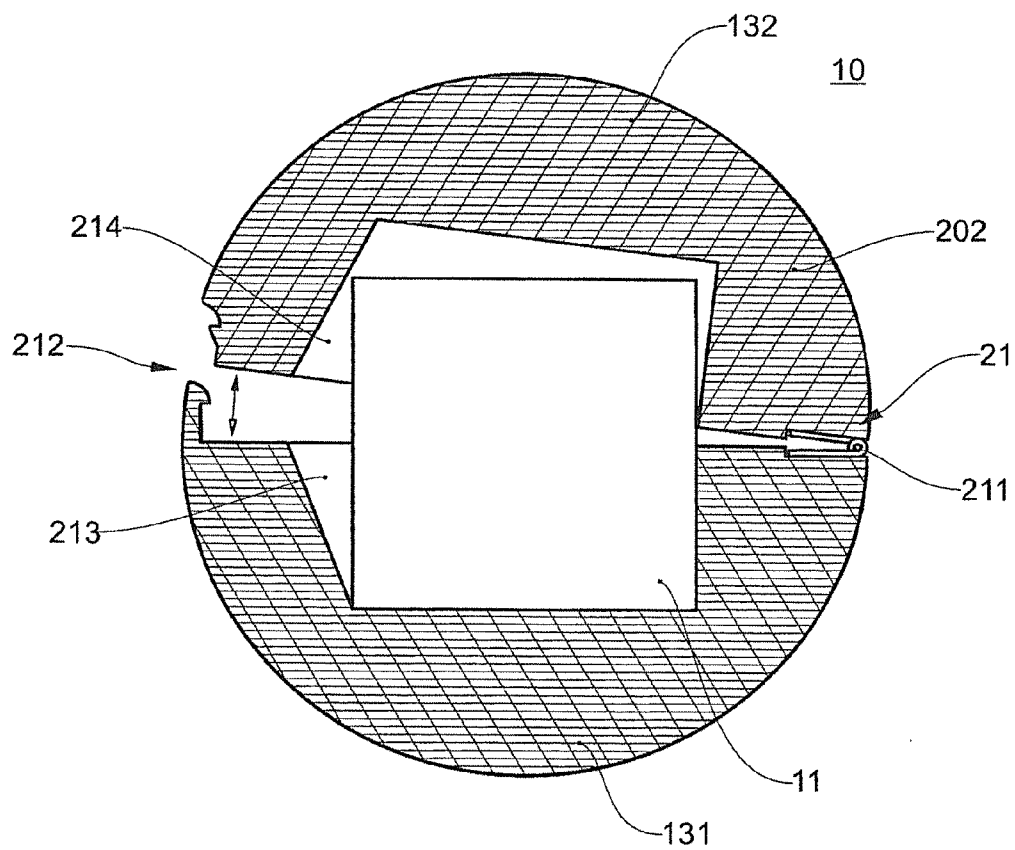


Fig.11a

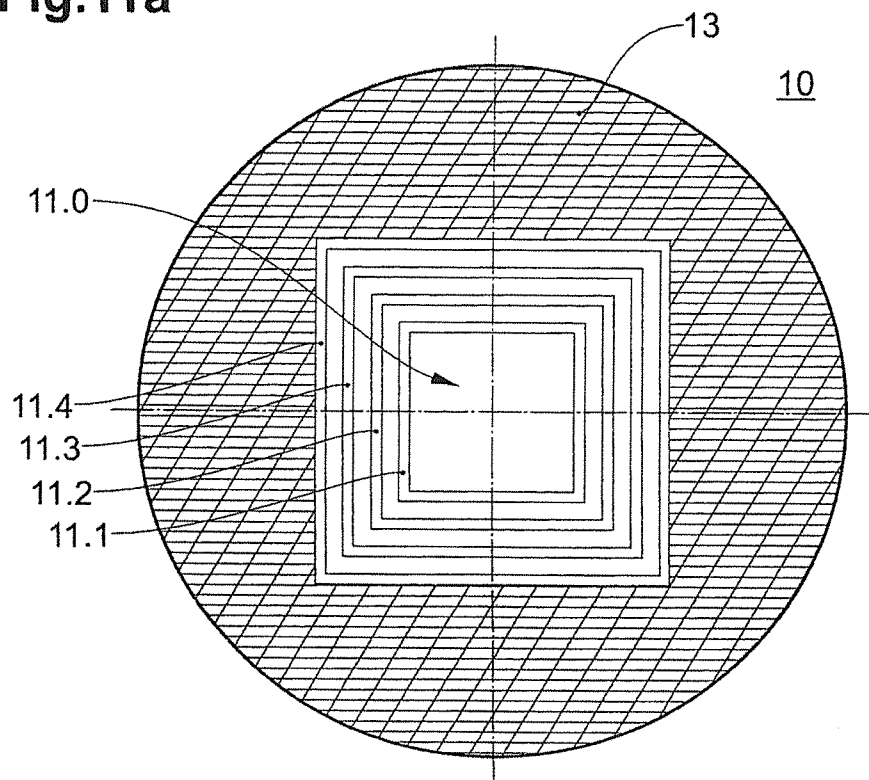


Fig.11b

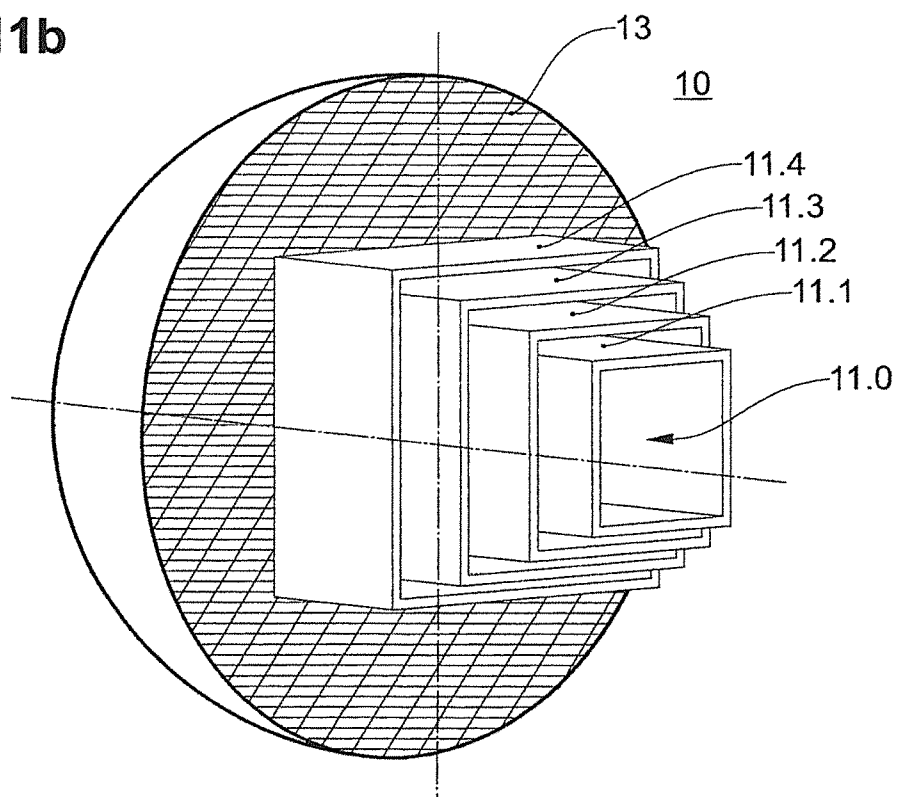


Fig.12a

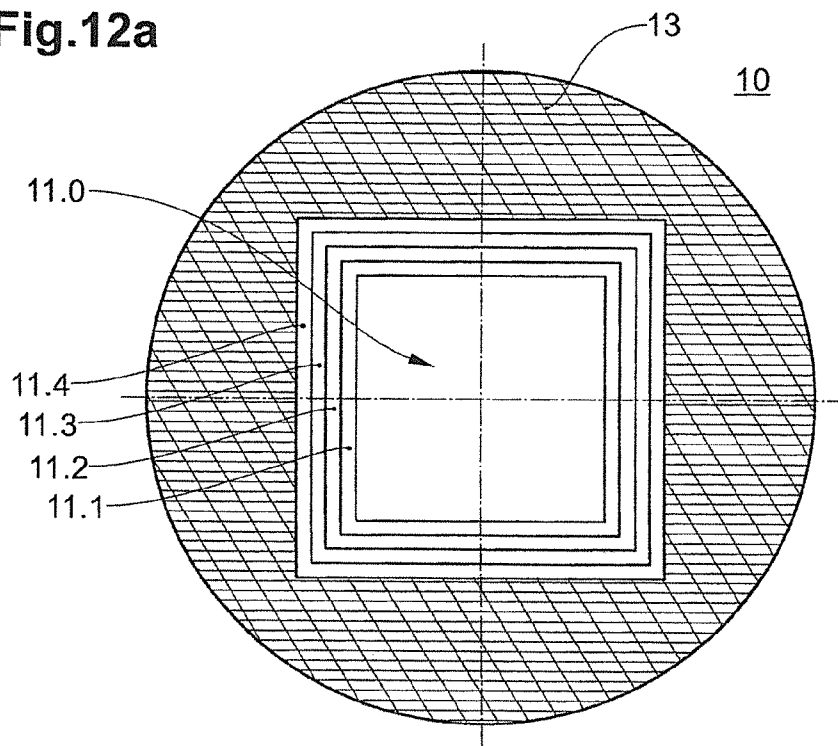


Fig.12b

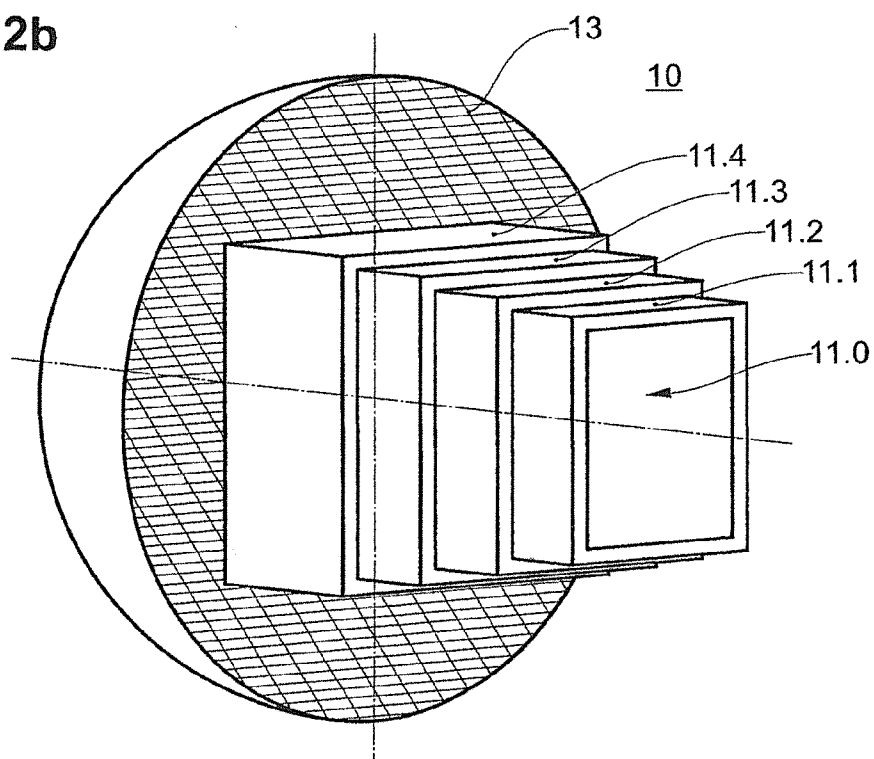


Fig.13a

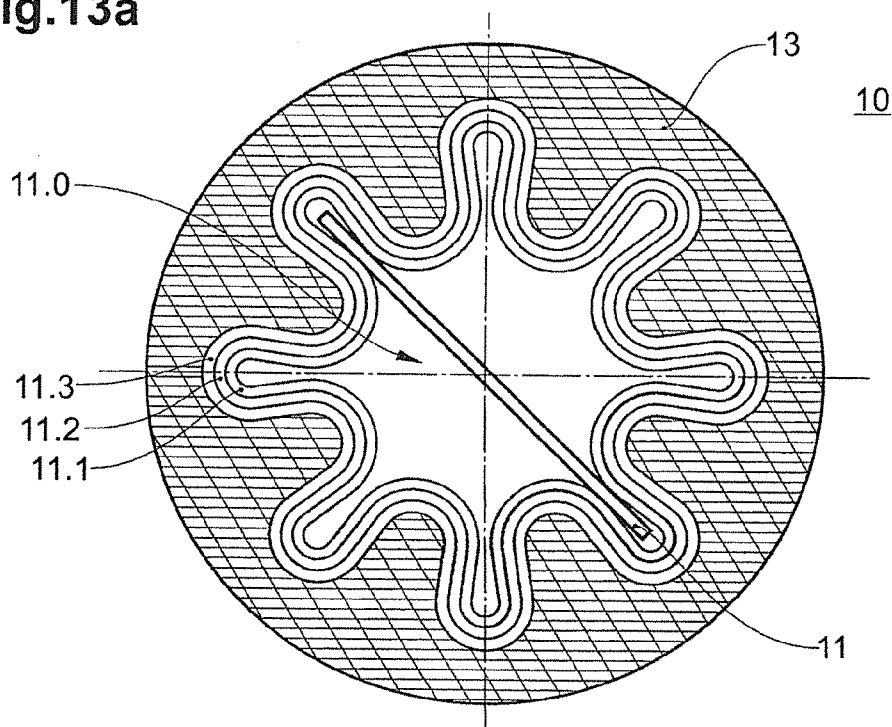
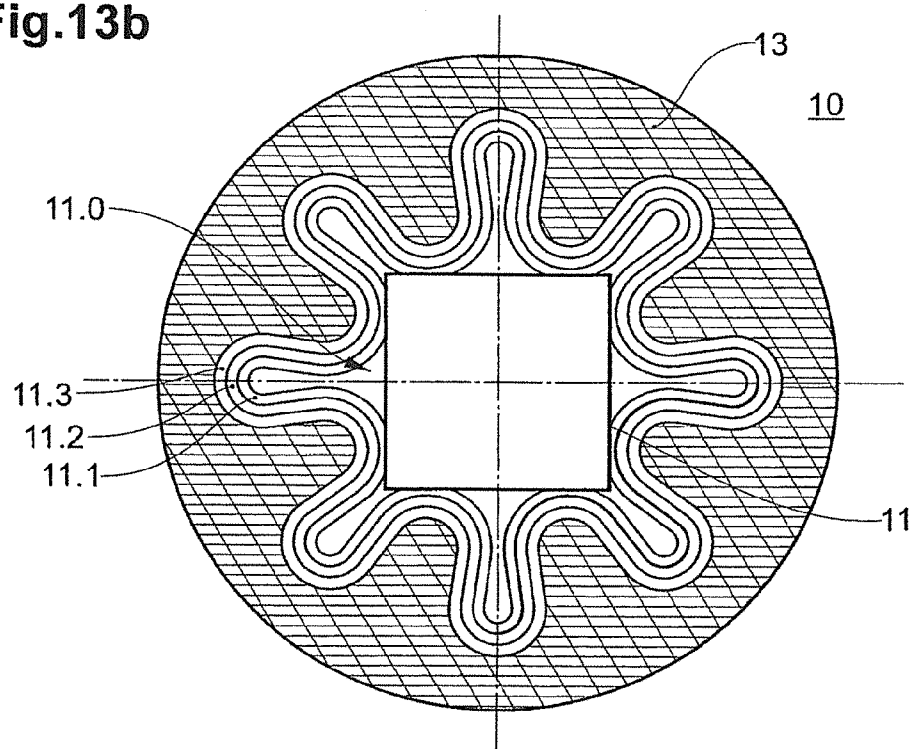


Fig.13b



**PACKAGING BODY HAVING A ROLLABLE
OUTER SHAPE AND METHOD FOR
PRODUCING A PACKAGING UNIT HAVING
SAID TYPE OF PACKAGING BODY**

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to the field of transport and the storage of goods. It relates to a packaging body according to the preamble of claim 1.

[0003] It further relates to a method for producing a packaging unit having such a packaging body.

[0004] 2. Discussion of Related Art

[0005] Dealing with goods of all types which are produced, packaged and finally transported to an intermediate dealer or vendor requires, especially also at times of online trading over the Internet, sophisticated logistics which comprises in particular storage, removal from storage and transportation.

[0006] Many goods, such as, for example, devices, food products, pharmaceuticals, clothes, operating materials, books, sound media, etc., are already provided by the manufacturer with an independent packaging and are where applicable combined to form relatively large units which are held in readiness, for example, on standardized pallets. Those pallets are generally moved with forklift trucks, loaded onto trucks or unloaded from trucks and positioned for storage on shelves of a store and removed from the store again as necessary.

[0007] In specific fields of logistics, there are used in particular automated high-shelf stores which are operated by automated loading and unloading devices in the passageways between the individual shelves.

[0008] A complex aspect of this type of store is that generally the last item stored has to be removed from the store again first because the shelves are generally only filled and emptied from one side. If the goods are transported in a state combined to form relatively large units on standardized pallets, such a relatively large unit has to be broken up in order to provide individual examples of the goods for further processing. This leads to additional problems if the units are held together on the pallet by a film being wrapped around said units.

[0009] It is known, for example, in the case of high-shelf stores, to insert into the shelves pallets with the goods located thereon on rolling paths which are inclined in the direction toward the unloading side so that the pallets automatically move toward the unloading side and the next pallet automatically slides after them if the preceding pallet has been removed from the shelf. Nevertheless, the removed pallets have to be transported out of the store with complex technical devices.

[0010] The situation becomes even more difficult if the goods are stored and removed from storage individually in their own packaging. If different goods are present with different packaging types and/or packaging sizes, the situation is even more complicated. An automated, mechanical storage and removal from storage can be produced only with difficulty in this instance so that generally the storage and removal from storage are carried out manually.

[0011] What is set out above also applies equally to the transport of goods from the manufacturer to the store or from the store to the intermediary or end customer.

[0012] The publication JP 2006016044 proposes the provision of a packaging container which can be readily trans-

ported, which can retain a packaging article horizontally and which can also improve the pick-up efficiency in a pick-up area.

[0013] To this end, a spherical packaging container is provided with a first container which is a spherical hollow member, a second container which is a spherical hollow member which is received in the first container and which receives an article to be packaged, and a connection means which connect together the first container and the second container with a degree of freedom of two or more axes.

[0014] There is provided a third spherical container which is a spherical hollow member which is received in the first container and which receives the second container; the inner face of the first container and the outer face of the third container are connected to each other at two locations using first connection members which are positioned on a first straight line which extends through the center point of the third container, and the inner face of the third container and the outer face of the second container are connected to each other at two locations using second connection members which are positioned on a second straight line which extends through the center point of the second container and perpendicularly to the first straight line.

[0015] Since the spherical packaging container has a spherical shape, an operating force can roll the spherical packaging container for conveying. Accordingly, it is not always necessary to lift the spherical packaging container during conveying and the spherical packaging container can readily be conveyed. There may further be provided a channel for conveying the spherical packaging container. In this instance, if an inclination of the channel is provided, the spherical packaging container is naturally rolled from the high side to the low side as a result of the conveying gravitational force. The inner container can always be kept horizontal even if the spherical packaging container is rolled.

[0016] A disadvantage of this type of packaging and packaging container is the extraordinarily complex inner structure of the packaging which is not practicable when processing relatively large streams of goods. However, another disadvantage is the movable storage of the goods or the packaging content in the packaging container which, if the center of gravity of the goods is not precisely at the center of the ball, results in tumbling and rolling movement sequences which cannot be controlled practically. It is further disadvantageous that the packaging content is not protected in a manner specific to the content, for example, by sufficient padding or a hermetic seal.

[0017] The publication U.S. Pat. No. 7,954,661 B2 discloses a transport container which comprises a spherical container and a heat-storing material which is arranged inside the spherical container. The heat-storing material has a space in which an article to be transported can be accommodated. This space is located at the center of the spherical container. The heat-storing material surrounds the article to be transported, living cell cultures, in a spherical manner so that practically the entire heat of the heat-storing material can be used to maintain the temperature of the article to be transported. The spherical shape of the container is selected in order to minimize the outer face which radiates heat and thus to extend the maintenance time for the temperature. A rolling transport is intended to be avoided in this transport container.

[0018] The publication U.S. Pat. No. 6,050,438 A discloses a spherical, thin-walled, divided capsule for receiving an article or a plurality of articles. The capsule can be separated

without being destroyed, wherein the portions have locking elements which engage with each other and which bring about a stable connection of the portions so that the capsule is suitable for use in automated vending machines.

[0019] The publication GB 2482476 A describes a thin-walled container having a round cross-section. Two shafts are fitted to the outer face of the container and are aligned in a common axis which is perpendicular to the round cross-section. Lines are fixed to the shafts. The container can be filled and emptied via openings. If the lines are pulled, the container rolls about the common axis. The container may be spherical or cylindrical. The transport is limited to fluids.

[0020] The publication EP 2583934 A1 sets out a re-usable beer cask having a hollow cask body and a disposable container arranged therein. The cask body is constructed as a rollable barrel. During filling with beer, the disposable container expands until it touches the inner face of the cask body. In order to dispense beer, CO₂ which is acted on with pressure is used. The disposable container is replaced after the beer has been completely dispensed. The beer is a shapeless packaging content. Fluids have no shape in principle.

[0021] The publication CN 201942318 U discloses an intelligent system which is for real-time processing of orders with automatic delivery of goods to customers and which operates with spherical transport containers which each comprise a spherical shell and an insert which is arranged therein and which is adapted to a rectangular, cylindrical or round container which is located in the sphere and which finally receives the actual goods. That system is configured for long transport paths between the goods vendor and the customer receiving the goods via transport tubes and paths which are mostly laid underground in the town and countryside.

[0022] A packaging body which effectively protects the packaging content and with which a packaging unit can further be readily produced and which can be transported in a readily rolling manner is desirable but unknown from the prior art.

SUMMARY OF THE INVENTION

[0023] Therefore, the object of the invention is to provide a packaging body which has the desired properties and to set out a method for producing a packaging unit having such a packaging body.

[0024] The object is achieved by the features of the independent claims.

[0025] The packaging body according to the invention has the outer form of a rollable body. It is characterized in that the packaging body encloses a content space or hollow space, and in that the content space or hollow space of the packaging body is adapted or can be adapted in terms of the form thereof to the form of a packaging content which is intended to be received in the packaging body. Such a packaging body is suitable for receiving unit loads having a defined independent form. However, fluids do not have any form and are therefore unsuitable for such a packaging body. The form of the packaging content describes the form or outline thereof. A general form, a durable inherent form, etc., are involved. The form of the packaging content has at least partially a defined form/outline, may have a plurality of portions, be flexible, be deformable, be resilient, etc.

[0026] An embodiment of the packaging body is characterized in that the content space or hollow space of the packaging body is constructed in terms of the form thereof so that the packaging content is fixed in the packaging body. The pack-

aging content is, for example, fixed in a positive-locking manner in the packaging body. In the present application, the term “fixing” or “positive-locking fixing” is intended to be understood to be a secure retention of the packaging content relative to the rollable packaging body, wherein a given play between the packaging content and the packaging body may be present in specific embodiments and consequently the movability of the packaging content with respect to the packaging body is limited.

[0027] Another embodiment of the packaging body is characterized in that it is constructed in several portions, in particular two portions or four portions. The plurality of portions of the packaging body can be fitted to the packaging content in order to form the packaging unit.

[0028] In one embodiment, the outer form of the packaging body is spherical.

[0029] In another embodiment, the outer form of the packaging body is cylindrical or barrel-like.

[0030] An embodiment of the packaging body is characterized in that the content space or hollow space of the packaging body is constructed in terms of the form thereof to fix a packaging content of one of the following forms: cube-like, parallelepipedal, polyhedral, spherical, cylindrical or barrel-like.

[0031] In an embodiment, the packaging body contains one or more of the following materials: open-pored plastics material, closed-pored plastics material, foamed filling material, foamed material. However, it is also conceivable for the packaging body to be produced as a grid construction, for example, from a metal wire.

[0032] In an embodiment, the packaging body contains a fire protection means and in particular one or more of the following materials: open-pored plastics material, closed-pored plastics material, foamed filling material, foamed material. Fires can be prevented or delayed by the fire protection means and in particular valid fire protection regulations can be complied with. The fire protection is very important particularly in the case of plastics materials, foamed materials, etc.

[0033] In an embodiment, an outer face of the packaging body has one or more of the following materials: hard plastics material, cardboard, plastics film, rubber film, rubber bands. A hard plastics material or cardboard protects a packaging body of foamed material from wear. A plastics film may produce a hermetic closure of the packaging content.

[0034] An embodiment of the packaging body is characterized in that it is constructed in several portions and a connection device is provided to connect the portions.

[0035] An embodiment of the packaging body is characterized in that the connection device comprises one or more of the following devices: joint connection, adhesive connection, thread-like connection, bayonet-like connection, connection having a ring element, plug type connection, pin-based connection, hinge-based connection.

[0036] An embodiment of the packaging body is characterized in that at least one information carrier which can be interrogated from the outer side is arranged on the packaging body.

[0037] In particular, the information carrier comprises at least one RFID tag and/or at least one label having an optically readable code.

[0038] Other types of applied codes such as, for example, matrix code, color code, numerical code, thermo code or holograms are also conceivable as information and/or identi-

fication means or a security feature. All these means can be readable optically, magnetically or by radio technology either as passive means which are interrogated from the outer side or as active means which themselves carry out an information transmission.

[0039] Furthermore, the packaging unit may be provided with an independent intelligence, for example, in the form of electronic means for data or signal processing, for example, with a microprocessor and corresponding data stores. Associated transmitting and receiving devices can exchange signals wirelessly with the environment via antenna elements which are fitted to the outer side. However, it is also conceivable to arrange at specific locations of the shell electrical contacts which are accessible from the outer side and via which access may be afforded to internal circuits.

[0040] In connection with internal electronic devices in the packaging unit, there may be provided internal energy stores and/or energy converters which store mechanical energy (spring, gas pressure), thermal energy (heat store) or electromagnetic energy (capacitor, battery, accumulator, coil, etc.) or produce energy (piezoelectric converter, inductive converter, etc.).

[0041] It is further conceivable to provide within the packaging unit location means, by way of which the location of the unit can be established and tracked at any time. In an extreme case, a location establishment by means of a GPS system or comparable systems may be considered. There may also be arranged inside the packaging unit permanent magnets which are interrogated from the outer side or which can trigger switching operations when specific locations are passed.

[0042] An embodiment of the packaging body is characterized in that the packaging body is configured on an outer face and/or on an inner face for the fitting of balancing elements. Balancing elements are normally not required in the case of a packaging content with low weight. However, balancing elements may be absolutely necessary in the case of a heavy packaging content with unfavorable weight distribution in order to obtain a rollable packaging unit.

[0043] An embodiment of the packaging body is characterized in that one or more retention devices are fitted to an outer face, in particular in order to carry the packaging body and/or to separate portions of a multi-portion packaging body from each other.

[0044] The outer face is the face with which the packaging body rolls on a substrate. Therefore, it should have sufficient hardness to withstand the rubbing and/or striking loads which occur during the rolling operation over a sufficiently long time of use.

[0045] The outer face may be constructed to be smooth, but may also have knobs or local indentations as in the case of a golf ball in order to produce specific running or rolling properties. Furthermore, if an ability to roll in any direction is not desirable, one or more peripheral guide beads which impart a specific preferred direction to the rolling movement may be provided.

[0046] There may be considered as materials in particular suitable plastics materials which have different degrees of transparency but which may also be completely non-transparent. In individual cases, it is also conceivable to use as a material for the shell a toughened glass as, for example, is used similarly in re-usable drinks bottles. In particular cases, however, the shell may also be produced from a suitable metal

or a metal alloy if, for example, thermal or electromagnetic properties, in particular, for example, screening properties, are significant.

[0047] If the shell material is non-transparent as a result of the type thereof, a local inspection means for the inner side may be provided at specific locations of the shell by inspection windows being arranged therein.

[0048] In addition to a packaging body, the invention relates to a method for producing a packaging unit which comprises a packaging content and a packaging body which encloses the packaging content, wherein in a first step the packaging content is provided, in a second step the packaging body is provided in a state ready for receiving the packaging content, in a third step the packaging content is introduced into the packaging body and in a fourth step the packaging body is closed. The method is characterized in that the packaging body is a packaging body according to the invention. This method can be carried out in a completely automated manner by robot-like devices.

[0049] An embodiment of the method is characterized in that the packaging body is in several portions, and in that in the fourth step the portions of the packaging body are connected to each other. A corresponding connection device may be constructed as a positive-locking, non-positive-locking or materially engaging connection device.

[0050] An embodiment of the method is characterized in that the weight distribution of the provided packaging content is established and in that balancing elements which are fitted to the packaging body are established therefrom.

[0051] An embodiment of the method is characterized in that the weight distribution of the packaging body is established with the packaging content introduced and in that balancing elements which are fitted to the packaging body are established therefrom.

BRIEF DESCRIPTION OF THE DRAWINGS

[0052] The invention is intended to be explained in greater detail below with reference to embodiments in connection with the drawings, in which:

[0053] FIG. 1 is a partially sectioned illustration of a cube-like or parallelepipedal packaging content which is retained by spikes and which is fixed in a spherical packaging body;

[0054] FIG. 2 is a partially sectioned illustration of a two-portion spherical packaging body having a content space which is provided for receiving a cube-like or parallelepipedal packaging content;

[0055] FIG. 3 is a partially sectioned illustration of a two-portion spherical packaging body with cube-like or parallelepipedal packaging content arranged therein, wherein the connection between the two portions of the packaging body is formed by a joint connection;

[0056] FIG. 4 is a partially sectioned illustration of a two-portion spherical packaging body with cube-like or parallelepipedal packaging content arranged therein, wherein the connection between the two portions of the packaging body is formed by an adhesive connection;

[0057] FIG. 5 is a partially sectioned illustration of a two-portion spherical packaging body with cube-like or parallelepipedal packaging content arranged therein, wherein the connection between the two portions of the packaging body is formed by a thread-like connection;

[0058] FIG. 6 is a partially sectioned illustration of a two-portion spherical packaging body with cube-like or parallelepipedal packaging content arranged therein, wherein the

connection between the two portions of the packaging body is formed by a bayonet-like connection;

[0059] FIG. 7 is a partially sectioned illustration of a two-portion spherical packaging body with cube-like or parallelepipedal packaging content arranged therein, wherein the connection between the two portions of the packaging body is formed by a ring element which is arranged in a groove;

[0060] FIG. 8 is a cross-section of a two-portion spherical or cylindrical packaging body with cube-like or parallelepipedal packaging content arranged therein, wherein the connection between the two portions of the packaging body is formed by a plug type connection;

[0061] FIG. 9 is a cross-section of a two-portion spherical or cylindrical packaging body with cube-like or parallelepipedal packaging content arranged therein, wherein the connection between the two portions of the packaging body is formed by a pin-based connection;

[0062] FIG. 10 is a cross-section of a two-portion spherical or cylindrical packaging body with cube-like or parallelepipedal packaging content arranged therein, wherein the connection between the two portions of the packaging body is formed by a hinge-based connection;

[0063] FIGS. 11a, 11b are a cross-section and a perspective view of a spherical packaging body with cube-like or parallelepipedal space arranged therein for a packaging content, which is contained in a plurality of elements which are fitted one in the other and with spacing from each other;

[0064] FIGS. 12a, 12b are a cross-section and a perspective view of a spherical packaging body with cube-like or parallelepipedal space arranged therein for a packaging content, which is contained in a plurality of elements which are fitted one in the other and which abut each other; and

[0065] FIG. 13 is a perspective view of a spherical or cylindrical packaging body with packaging content which is arranged therein and which has a plurality of meandering elements which are fitted one in the other.

DETAILED DESCRIPTION OF THE INVENTION

[0066] The invention relates to a packaging unit 10 which is constructed as a rollable body. FIG. 1 is a schematic view of a packaging content 11 (which is in this example cube-like or parallelepipedal) which is retained by spikes 121, 122, 123, 124 and which is fixed in a packaging body 13. The packaging content 11 and the packaging body 13 form the packaging unit 10, wherein the packaging body 13 and therefore the packaging unit 10 has the form of a rollable body, such as, for example, a ball, a cylinder, a barrel, etc. In the present exemplary figures, the packaging unit 10 is constructed in a completely spherical manner.

[0067] The packaging body 13 contains, for example, a light and cost-effective material such as an open-pored plastics material, a closed-pored plastics material, a foamed filling material, a dimensionally stable foamed material or any other material which is suitable in this regard or a combination of such materials. The packaging body 13 may have at the outer face a different material from the one at the inner side. Thus, the outer face may have, for example, a material such as hard plastics material, cardboard, plastics film or any other material which is suitable for the outer face. Therefore, it should have sufficient hardness to withstand the rubbing and/or striking loads which occur during the rolling operation over a sufficiently long time of use. The materials at the inner side and at the outer face of the packaging body 13 can thereby be adapted to functions such as, for example, opti-

mum padding (inner material), efficient rolling behavior or protection against environmental influences (outer material), etc.

[0068] The surface of the shell may be constructed to be smooth, but may also have knobs or local indentations, as in a golf ball, in order to produce specific running or rolling properties. Furthermore, if an ability to roll in any direction is not desirable, one or more peripheral guide beads which impart a specific preferred direction to the rolling movement may be provided.

[0069] There may be considered as materials in particular suitable plastics materials which have different degrees of transparency but which may also be completely non-transparent. In individual cases, it is also conceivable to use as a material for the shell a toughened glass as, for example, is used similarly in re-usable drinks bottles. In particular cases, however, the shell may also be produced from a suitable metal or a metal alloy if, for example, thermal or electromagnetic properties, in particular, for example, screening properties, are significant.

[0070] If the shell material is non-transparent as a result of the type thereof, a local inspection means for the inner side may be provided at specific locations of the shell by inspection windows being arranged therein.

[0071] The spikes 121, 122, 123, 124 are provided in order to retain the packaging content 11 in a defined position during the production of the packaging unit 10, wherein the spikes 121, 122, 123, 124 can be removed from the packaging body 13 after the production of the packaging unit 10. In order to retain the packaging content 11, for example, there may be used six spikes 121, 122, 123, 124 or any other number of spikes 121, 122, 123, 124. In order to make it easier to remove the spikes 121, 122, 123, 124, they may have a coating, be constructed to be heatable or have any other characteristics which make removal easier. The spikes 121, 122, 123, 124 may be constructed in a pointed manner and may be introduced into the packaging content 11 to a defined extent in order to prevent slipping. The spikes 121, 122, 123, 124 may be constructed to be blunt in order not to damage the packaging content 11.

[0072] For example, the spikes 121, 122, 123, 124 are arranged in a forming tool in order to produce portions of a multi-portion rollable body. When the forming tool is open, the packaging content 11 is moved into a defined position with the spikes 121, 122, 123, 124. The forming tool is closed and a portion of the packaging body 13 and therefore a preliminary step of the packaging unit 10 is formed by injecting a material into the forming tool. The forming tool is opened and the spikes 121, 122, 123, 124 are removed from the packaging body 13, wherein the packaging unit 10 is partially produced and comprises the portion of the packaging body 13 and the packaging content 11 arranged therein. Naturally, the individual portions of the packaging body 13 can be produced without any packaging content 11, subsequently filled with the packaging content 11 and finally connected to each other in order to form the packaging unit 10.

[0073] The packaging content 11 which is schematically illustrated in FIG. 1 has the form of a cube. However, the packaging content 11 may also have any other forms such as, for example, the form of a parallelepiped, a pyramid or any other form. The packaging content 11 may further itself be in the form of a rollable body such as, for example, a ball, a cylinder, a barrel, etc. In accordance with the form of the packaging content 11, the packaging body 13 has a content

space or hollow space (1311 in FIG. 2) which is preferably configured to fix the packaging content 11.

[0074] The packaging content 11 may be arranged symmetrically with respect to the geometry relative to the packaging body 13, that is to say, the center of a packaging content 11 which is constructed as a cube can coincide with the center of a packaging body 13 which is constructed as a ball. It is thereby ensured that the packaging content 11 is protected identically from all sides by the packaging body 13 because the packaging content 11 is protected from all sides by the same form of the packaging body 13. However, this may negatively influence the ability of the packaging unit 10 to roll if the center of gravity of the packaging unit 11 does not coincide with the center point of the packaging body 13.

[0075] The packaging content 11 may be arranged symmetrically with respect to the center of gravity relative to the packaging body 13, that is to say, the center of gravity of a freely constructed packaging content 11 coincides with the center point of a packaging body 13 which is constructed as a ball. In particular the ability of the packaging unit 10 to roll is thereby promoted or even made possible. However, this may negatively influence the protection of the packaging content 11 because the packaging content 11 is not protected from all sides by the same form of the packaging body 13 but instead where applicable the packaging body 13 has a reduced wall thickness between one side of the packaging content 11 and the outer side of the packaging unit 10.

[0076] For a specific forming tool for the packaging body, it is possible to form packaging units 10 which have completely different packaging contents 11 but always the same outer dimensions. In an environment for transport and storage of goods, for example, three, five, nine or any other number of standardized dimensions may be defined for the dimensions of the packaging units 10, wherein those standardized dimensions are adapted in particular to devices such as ramps, guide wires, containers, etc., for the rolling, storage, etc., of the packaging units 10. Accordingly, one or more forming tools may be configured in order to produce packaging bodies 13 or packaging units 10 according to the standardized dimensions.

[0077] In a variant, the standardized dimensions are adapted to each other so that one or more smaller packaging units 10 can be received as packaging content 11 in a relatively large packaging unit 10 which again forms, for example, at least partially the packaging content 11 for an even greater packaging unit 10, etc.

[0078] FIGS. 3 to 10 are schematic illustrations of packaging units 10 having multi-portion packaging bodies which are produced from a first packaging body 131 and a second packaging body 132 with packaging content 11 arranged therein. In principle, the above-described individual packaging body 13 is formed by the two (partial) packaging bodies 131, 132. The packaging bodies 131, 132 are produced, for example, from a material such as styrofoam, foamed material or any other material and have where applicable, as described above, a more stable or harder outer face of a different material. The production of the packaging bodies 131, 132 is carried out, for example, in a factory which specializes therein and which acts as the delivery factory and is not further involved in the actual production of packaging units 10 in situ. The packaging bodies 131, 132 can be produced in a cost-effective manner in the factory which specializes therein with a high level of quality. In order to produce the packaging unit 10, no forming tool is necessary in situ.

[0079] As can be seen from the figures, the packaging bodies 131, 132 are configured to receive the packaging content 11. Thus, for example, as schematically illustrated in FIG. 2, there is provided the first (partial) packaging body 131 which has a content space or hollow space 1311 in which the packaging content 11 can be inserted. For example, the first packaging body 131 is retained with a retention device and the packaging content 11 is inserted. Subsequently, the second packaging body 132 which has a corresponding content space or hollow space is positioned and the packaging unit 10 is formed.

[0080] The introduction of the packaging content 11 into the packaging bodies 131, 132 can be carried out in a fully automated manner, wherein, for example, robot-like devices are provided in order to combine the packaging bodies 131, 132 and the packaging content 11 to form a packaging unit 10. Naturally, the fabrication of packaging units 10 can also be carried out manually by an operator or semi-automatically, wherein the semi-automatic production comprises both operations by means of robot-like devices and manual operations by an operator.

[0081] FIGS. 3 to 10 illustrate the (partial) packaging bodies 131, 132 in a symmetrical manner. Instead, the packaging bodies 131, 132 can also be constructed in an asymmetrical manner, wherein the combined outer form thereof further forms a rollable body. Thus, the first packaging body 131 may be constructed as a sphere segment which just receives the packaging content 11 completely whereas the second packaging body 132 is constructed as a sphere segment which is positioned in the manner of a lid on a surface which is formed by the packaging content 11 and the first packaging body 131 in order to form the packaging unit 10 in the form of a sphere.

[0082] In any manner, an active connection which brings about a retention action can be produced between the (partial) packaging bodies 131, 132 in order to connect them to each other. The active connection particularly ensures that the packaging unit 10 is also retained as a unit after relatively long or rapid rolling operations and after relatively long storage times and the packaging bodies 131, 132 do not fall apart and release the content.

[0083] FIG. 3 schematically illustrates that a joint connection 14 is formed between the packaging bodies 131, 132 in order to connect them to each other. The joint connection 14 may be formed, for example, by welding, jointing, etc. The joint connection 14 is adapted to the outer side of the packaging bodies 131, 132, wherein the joint connection 14 in particular does not form any projecting or protruding projections so that the free rolling action of the packaging unit 10 is not impaired.

[0084] FIG. 4 schematically illustrates that an adhesive connection 15 is formed between the packaging bodies 131, 132 in order to connect them to each other. The adhesive connection 15 is preferably formed at the abutment face between the packaging bodies 131, 132, for example, by gluing, fitting a tape which is adhesive on both sides, etc. The adhesive connection should be completely covered by the packaging bodies 131, 132 so that the rolling of the packaging unit 10 is ensured without any impairment. In place of a materially engaging adhesive connection, a hook and loop connection may also be provided.

[0085] The joint connection 14 or the adhesive connection 15 can be constructed in such a manner, respectively, that a hermetic closure is formed and consequently the packaging content 11 is further protected from environmental influ-

ences. This is advantageous during the storage of packaging contents 11 in which such a hermetic closure is necessary, for example, packaging contents 11 which are intended to be protected from humidity and which have to be stored in a storage hall having a high air humidity level.

[0086] FIG. 5 schematically illustrates that a thread-like connection 16 is provided between the packaging bodies 131, 132 in order to connect them to each other in a screw-like manner. A packaging content 11 is arranged in the packaging bodies 131, 132.

[0087] FIG. 6 schematically illustrates that a bayonet-like connection 17 is provided between the packaging bodies 131, 132 in order to connect them to each other. The packaging bodies 131, 132 have a content space or a hollow space 1311 for receiving a packaging content 11.

[0088] As schematically illustrated in FIGS. 5 and 6, the packaging bodies 131, 132 have mutually complementary shoulders, wherein there are formed on the packaging bodies 131, 132 circular-cylindrical surfaces which extend perpendicularly relative to the abutment face of the packaging bodies 131, 132 and which are provided for the cooperation of the thread-like connection 16 and the bayonet-like connection 17, respectively.

[0089] The thread-like connection 16 and bayonet-like connection 17 have the advantage, respectively, that the packaging bodies 131, 132 can be separated from each other simply and without being destroyed in order to remove the packaging content 11 therefrom. The packaging bodies 131, 132 can consequently be used again.

[0090] FIGS. 5 and 6 illustrate the content spaces or hollow spaces as rectangular spaces which extend over both packaging bodies. It is self-evident that the spaces and therefore also the packaging content 11 have to be adapted in reality to the necessary rotational movement of the two packaging bodies 131, 132 with respect to each other in order to allow the rotational closure or opening at all. This may be carried out either in that the spaces have a concentric circular cross-section perpendicularly to the rotation axis, or in that the spaces are limited to one of the packaging bodies 131, 132.

[0091] FIG. 7 schematically illustrates that the connection is produced between the packaging bodies 131, 132 by a ring element 18. The packaging bodies 131, 132 each have a peripheral groove or indentation which are preferably in a plane which may preferably be perpendicular to the abutment plane between the packaging bodies 131, 132. By a ring element 18 being inserted into the groove or indentation, the packaging bodies 131, 132 are retained together. The ring element 18 may be produced as a rubber band, a steel ring with a lock, an annular spring steel wire, a plastics tape with hook and loop closure or in any other manner. The ring element 18 may have a particularly small weight in order not to influence the rolling action of the packaging unit 10. The ring element 18 may have a defined mass or mass distribution which influences the rolling of the packaging unit 10 in a specific manner, for example, in such a manner that the packaging unit 10 rolls over the ring element 18 which acts as a wheel and therefore a centering action is brought about as in a symmetrical gyroscope. The peripheral groove of the packaging bodies 131, 132 and the ring element 18 can complement each other so that no projecting or protruding projections are formed and the rolling of the packaging unit is not impaired.

[0092] FIG. 8 schematically illustrates a plug type connection 19 between the packaging bodies 131, 132. The plug type

connection 19 comprises studs 191 which are inserted into blind holes 192 in order to produce a non-positive-locking connection between the packaging bodies 131, 132. In FIG. 8, two studs 191 and two blind holes 192 can be seen but there may also be provided more studs 191 and blind holes 192. The studs 191 can be arranged on one packaging body 131, 132 or, for example, alternately on both packaging bodies 131, 132, wherein the blind holes 192 complement each other on the other packaging body, respectively. There may be provided on the packaging bodies 131, 132 only blind holes 192 in which corresponding studs 191 are inserted in order to connect the packaging bodies 131, 132. The studs 191 have characteristics such as projections, resilient elements, etc., in order to promote the non-positive-locking connection between the packaging bodies 131, 132. The studs 191 can further be connected in a materially engaging manner to the blind holes 192, that is to say, for example, glued, in order to reinforce the connection between the packaging bodies 131, 132.

[0093] FIG. 9 schematically illustrates a pin-based connection 20 which is for connecting the packaging bodies 131, 132 and which comprises pins 201 which are arranged in holes 202. The holes 202 are fitted to the packaging bodies 131, 132 in a direction which is orientated perpendicularly relative to the abutment face between the packaging bodies 131, 132. In a variant, however, those holes may also be constructed to be oblique relative to this abutment face. FIG. 9 illustrates two holes but there may also be provided four, six or any other number of holes. The holes 202 are constructed in a continuous manner so that the pins 201 can be introduced from the outer side into the holes 202 when packaging bodies 131, 132 are combined in order to produce a connection between the packaging bodies 131, 132. The connection is produced as a result of a non-positive—locking connection between the pins 202 and the two packaging bodies 131, 132, that is to say, the pins 202 must extend in the holes 201 over both packaging bodies 131, 132. The pins may have suitable additional devices such as projections, grooves, resilient elements, etc., in order to reinforce the non-positive-locking connection. In order to separate the packaging bodies 131, 132, the pins 201 can be removed relatively easily by an ejection element being introduced into the holes 202 in order to discharge the pins 201 out of the holes 202 and to release the connection between the packaging bodies 131, 132 again. Furthermore, a materially engaging connection can be produced between the pins 201 and the packaging bodies 131, 132 in order to reinforce the connection between the packaging bodies 131, 132. In this case, the connection cannot be readily released again.

[0094] FIG. 10 schematically illustrates a hinge-based connection 21 for connecting the packaging bodies 131, 132 which comprises a hinge 211 and a snap-fit closure 212. The packaging bodies 131, 132 may have wedge-like recesses 213, 214 so that the packaging content 11 does not abut when the packaging bodies 131, 132 are closed. The packaging content 11 may be inserted either into the first packaging body 131 or into the second packaging body 132, wherein it is possible to close the packaging bodies 131, 132 by means of the wedge-like recesses 213, 214. In a variant, only one of the packaging bodies 131, 132 has a wedge-like recess, wherein the packaging content 11 absolutely has to be inserted first into the packaging bodies 131, 132 without this wedge-like recess so that the packaging body 131, 132 can be closed. The hinge 211 is constructed in such a manner that there are no projecting or protruding projections at the outer side of the

packaging body **131**, **132**, whereby the rolling action of the packaging body **131**, **132** remains unimpaired.

[0095] The packaging bodies **131**, **132** may have at an outer face one or more retention devices such as, for example, recessed indentations or handles so that the packaging bodies **131**, **132** can be carried and/or can be separated from each other more easily for access to the packaging content **11**. In the case of a one-portion packaging body **13** or multi-portion packaging bodies **131**, **132** which are connected with a connection device, the retention devices can be used to carry the packaging unit **10**. The retention devices may be located substantially in a plane which is located perpendicularly to the abutment plane between the packaging bodies **131**, **132**. When the connection device is open, the packaging bodies **131**, **132** can be separated from each other by a pulling action on the retention devices in directions which are orientated away from the packaging content **11**, and the packaging content **11** can be removed. The retention devices such as, for example, the recesses or handles are constructed in such a manner that an unimpaired rolling action of the packaging unit **10** remains ensured. For example, the recesses are arranged in a recessed state or the handles are arranged to be able to be folded out.

[0096] However, the connection types described can also be combined with each other. Thus, the plug type connection **19** illustrated in FIG. 8 can be combined with the pin-based connection **20** illustrated in FIG. 9. For example, as described, the plug type connection **19** can be constructed in such a manner that for connection a stud **191** is intended to be fitted between blind holes **192** which are arranged in the packaging bodies **131**, **132**. This has the advantage that a decision has to be taken only when using such packaging bodies **131**, **132** whether a plug type connection **19** which is not accessible from the outer side or a pin-based connection **20** which is accessible from the outer side should be used.

[0097] The packaging body **13**, **131**, **132** may have more than two portions, that is to say, be constructed in a multi-portion manner, that is to say, for example, may comprise four, six or any other number of portions, wherein the individual portions are connected to each other after the formation of the packaging unit **10** which contains the packaging content **11**, in particular by means of one or more of the connection types described. Thus, for example, four equivalent sphere segments may be provided in the case of a packaging content **11** in the form of a cube. The cube is initially located on a base face. A first edge is selected from the four edges located at the top and a first sphere segment is positioned thereon. The cube is tilted in the direction of the edge with the first sphere segment positioned thereon and a second sphere segment is positioned on the edge opposite the first edge. A third sphere segment is positioned on the edge which is now at the top. The first, second and third sphere segments are connected to each other, for example, adhesively bonded. The body which is formed in this manner can now be rotated in a rolling movement so that the edge opposite the third sphere segment is accessible in order to position a fourth sphere segment and to connect it to the first and second sphere segments. Such an operation may be particularly advantageous in a packaging unit having a great weight.

[0098] The packaging content **11** may be constructed in several portions and may comprise, for example, a product and an adapter, with which the product is adapted to a content space **1311** of a packaging body. With the adapter which is produced, for example, from foamed material, gel mass or

styrofoam, it is possible to adapt products of different forms to packaging bodies **131**, **132** having a standardized content space **1311**. The production of the packaging body **131**, **132** may be carried out as described in a factory which specializes therein whereas the production of the adapter may be carried out in situ. The adapter may comprise individual portions which can be combined, or may be produced specifically for the product, for example, with a forming tool, a 3D printer or in some other manner. During the production of packaging units **10**, it is possible to detect the geometry of the product which is next intended to be arranged in a packaging body **13**, **131**, **132**. An adapter can be produced or selected in accordance with the geometry established in order to produce the packaging unit **10**. In particular in an environment in which different products are supplied on a conveyor belt in order to arrange them in standardized packaging units **10**, it is thereby possible to carry out processing in an automated, rapid and efficient manner.

[0099] A packaging body **13**, **131**, **132** may comprise at least one information carrier which can be read from the outer side, such as, for example, an RFID tag (RFID: Radio Frequency Identification) and/or at least one label having an optically readable code. Since the range of RFID tags is limited, the arrangement of a plurality of RFID tags can increase the probability, or can always ensure, that the read-out of an RFID tag is ensured independently of the current position of the packaging body **13**, **131**, **132**. By a plurality of labels being arranged, the probability is increased or it is always ensured that the read-out of the optical code is ensured independently of the current position of the packaging body **13**, **131**, **132**. Data which can be read via radio waves by an RFID reader can be stored on the RFID tag. The optically readable code can be constructed, for example, as a bar code or as a 2D code which comprise data which can be read by an optical reading device. A packaging unit **10** which is produced from such packaging bodies **131**, **132** can thus be unambiguously identified. For example, by storing and associating data of the information carrier and the packaging content which is arranged in the packaging body **13**, **131**, **132** in suitable databases, it is thereby possible to check the packaging content **11** at any time by reading out data of the information carrier. Other types of codes which are applied, such as, for example, matrix code, color code, numerical code, thermo code or holograms, are also conceivable as an information means and/or identification means or security feature. All these means can be read optically, magnetically or by radio technology, and either as a passive means which are interrogated from the outer side or as an active means which carry out an information transmission themselves.

[0100] Furthermore, the packaging body may be provided with its own intelligence, for example, in the form of electronic means for data or signal processing, for example, with a microprocessor and corresponding data stores. Associated transmitting and receiving devices can exchange signals wirelessly with the environment via antenna elements which are fitted to the outer side. However, it is also conceivable to arrange electrical contacts, which are accessible from the outer side and via which access can be afforded to internal circuits, at specific locations of the shell.

[0101] In conjunction with internal electronic devices in the packaging body, there may be provided internal energy stores and/or energy converters which store mechanical energy (spring, gas pressure), thermal energy (heat store) or

electromagnetic energy (capacitor, battery, accumulator, coil, etc.) or produce energy (piezoelectric converter, inductive converter, etc.).

[0102] It is further conceivable to provide within the packaging body location means by way of which the location of the unit can be established and tracked at any time. In an extreme case, a location establishment by means of a GPS system or comparable systems may be considered. There may also be arranged inside the packaging body permanent magnets which are interrogated from the outer side or which can trigger switching operations when specific locations are passed.

[0103] A packaging body **13**, **131**, **132** can be configured to receive balancing elements at the outer face or at the inner face. It is possible with the balancing elements for the center of gravity of the packaging unit **10** to correspond sufficiently precisely to the geometric center of the packaging body **13**, **131**, **132**. The ability of the packaging unit **10** to roll can thereby be improved or even made possible in the case of a packaging content **11** with very unfavorable weight distribution. In order to balance the packaging unit **10**, components of connection devices such as, for example, studs or pins, can also be produced from particularly light or particularly heavy material. Recesses in which balancing elements are adhesively bonded can be provided at the outer face of the packaging body **13**, **131**, **132**. Recesses in which balancing elements are inserted and retained therein in conjunction with the packaging content **11** can be provided at the inner face of the packaging body **13**, **131**, **132**. The balancing elements can be produced from a cost-effective material having a high density such as, for example, iron, lead, concrete, etc. In a preferred manner, the material can be shaped in a desirable manner in order to be able to adapt the balancing element to the packaging body **13**, **131**, **132** in a desirable manner.

[0104] FIG. **11a** and FIG. **11b** illustrate a spherical packaging body **13** with a cube-like or parallelepipedal space **11.0** arranged therein for a packaging content **11**, which space **11.0** is contained in a plurality of elements **11.1**, **11.2**, **11.3**, **11.4** which are fitted one in the other and spaced apart from each other. The plurality of elements **11.1**, **11.2**, **11.3**, **11.4** which are spaced apart from each other are constructed, for example, in a cube-like or parallelepipedal manner and have—as illustrated schematically in FIGS. **11a**, **11b**—for example, four outer faces and two access openings. It is possible to provide other embodiments of the plurality of elements **11.1**, **11.2**, **11.3**, **11.4** which are spaced apart from each other. The outer faces of the plurality of elements **11.1**, **11.2**, **11.3**, **11.4** which are spaced apart from each other are formed by outer walls which have a desired thickness. The plurality of elements **11.1**, **11.2**, **11.3**, **11.4** which are spaced apart from each other are retained with spacing from each other by spacers which are not illustrated, for example, by brackets, pins, etc. Alternatively or additionally, the plurality of elements **11.1**, **11.2**, **11.3**, **11.4** which are spaced apart from each other are retained in the packaging body **13**, for example, in grooves which are fitted to the packaging body **13**, by being pressed into the packaging body **13**, etc. A space **11.0** for a packaging content is formed by the plurality of elements **11.1**, **11.2**, **11.3**, **11.4** which are spaced apart from each other, which space is optimally adapted to the dimensions or measurements of the packaging content. Thus, it is possible to use fewer of the elements **11.1**, **11.2**, **11.3**, **11.4** which are spaced apart from each other in the case of relatively large packaging contents and more of the elements **11.1**, **11.2**, **11.3**, **11.4** which are

spaced apart from each other in the case of relatively small packaging contents. The spacers which are not illustrated can have damping functions so that the packaging content is retained in the packaging body **13** with as few vibrations as possible. The materials of the plurality of elements **11.1**, **11.2**, **11.3**, **11.4** which are spaced apart from each other can be selected to be identical or different. For example, the innermost element can be constructed to be particularly soft and the adjacent elements to be increasingly hard in order to retain the packaging content in a desired manner in the packaging body **13**.

[0105] FIG. **12a** is a schematic cross-section and FIG. **12b** is a schematic perspective view of a spherical packaging body **13** with a cube-like or parallelepipedal space **11.0** arranged therein for a packaging content **11**, which space **11.0** is contained in a plurality of elements **11.1**, **11.2**, **11.3**, **11.4** which are fitted one in the other and which abut each other. The mutually abutting elements **11.1**, **11.2**, **11.3**, **11.4** are constructed substantially similarly to the elements **11.1**, **11.2**, **11.3**, **11.4** which are spaced apart from each other in FIGS. **11a**, **11b**, but in contrast have such dimensions that the mutually abutting elements **11.1**, **11.2**, **11.3**, **11.4** of FIG. **12a**, **12b** touch each other. Consequently, no spacers or the like are necessary in the mutually abutting elements **11.1**, **11.2**, **11.3**, **11.4** of FIG. **12a**, **12b**. The mutually abutting elements **11.1**, **11.2**, **11.3**, **11.4** of FIG. **12a**, **12b** are constructed in such a manner that they can be pushed into each other in an easy-running manner and an internal element, for example, the element designated **11.1**, is retained by the outer element in each case, that is to say, in the present example by the element designated **11.2**. A very stable body is provided by the mutually abutting elements and is advantageous in applications for retaining a packaging content **11** in the packaging body **13**.

[0106] FIG. **13a** and FIG. **13b** are schematic cross-sections of a spherical or cylindrical packaging body with a space **11.0** arranged therein for a packaging content, which space **11.0** is contained in a plurality of meandering elements **11.1**, **11.2**, **11.3** which are fitted one in the other. In cross-section, the meandering elements **11.1**, **11.2**, **11.3** have a form which moves back and forth along a periphery of a circle in a meandering form between an interior of the circle and an exterior of the circle. Within such an element, there are thereby provided various possible manners in order to arrange a packaging content **11**. For example, a rod-like packaging content **11** as illustrated schematically in FIG. **13a** can be clamped in the meandering elements **11.1**, **11.2**, **11.3** and a plurality of rod-like packaging contents can be arranged in this manner in a star-like stack. FIG. **13b** illustrates a cube-like or parallelepipedal packaging content **11** which is retained in the meandering elements **11.1**, **11.2**, **11.3**, in particular outer faces of the packaging content **11** are supported on the elements **11.1**, **11.2**, **11.3** while outer edges are located in empty spaces. Forces between the meandering elements **11.1**, **11.2**, **11.3** and the packaging content **11** are thereby transmitted to the outer faces of the packaging content, whereby this arrangement is particularly suitable for such applications in which that type of force transmission is necessary.

[0107] The arrangements schematically illustrated in FIGS. **11a**, **11b**, **12a**, **12b** and **13a**, **13b** can readily be taken up from a spherical packaging body to a cylindrical or barrel-like packaging body. In the case of a spherical packaging body, internal elements have an increasingly small cross-section but can have an increasingly large length perpendicularly to the

cross-section. In the case of a cylindrical or barrel-like packaging body, internal elements can have a constant length or substantially constant length perpendicularly to the cross-section.

[0108] The packaging bodies 13, 131, 132 described are particularly suitable for storing unit loads. The storage and removal from storage of the packaging units 10 which can be formed with the packaging bodies 13, 131, 132 is carried out in that the packaging units 10 are rolled along defined paths. The paths are inclined and a relatively small supply of energy is required, or no energy supply at all. The stock-keeping can be carried out without any manual handling. For example, the stock-keeping can be carried out in an environment with reduced oxygen content. As a result of the reduced energy supply and/or the reduction of the oxygen content, the risk of fire is reduced during stock-keeping. The risk of damage during stock-keeping is thereby reduced which, for example, also results in particularly favorable insurance conditions. As described above, the packaging bodies 13, 131, 132 may contain a fire protection means in order to further reduce the risk of fire.

1. A packaging body (13, 131, 132) comprising:
an outer form of a rollable body, wherein the packaging body (13, 131, 132) encloses a content space or hollow space (1311), and the content space or hollow space (1311) of the packaging body (13, 131, 132) is adapted in a form thereof to the form of a packaging content (11) which is intended to be received in the packaging body (13, 131, 132).
2. The packaging body (13, 131, 132) as claimed in claim 1, wherein the content space or hollow space (1311) of the packaging body (13, 131, 132) is constructed in the form thereof so that the packaging content (11) is fixed in the packaging body (13, 131, 132).
3. The packaging body (13, 131, 132) as claimed in claim 1 wherein the packaging body (13, 131, 132) is constructed in several portions, in particular two portions or four portions.
4. The packaging body (13, 131, 132) as claimed in claim 1, wherein the outer form of the packaging body (13, 131, 132) is spherical.
5. The packaging body (13, 131, 132) as claimed in claim 1, wherein the outer form of the packaging body (13, 131, 132) is cylindrical or barrel-like.
6. The packaging body (13, 131, 132) as claimed in claim 1, wherein the packaging body (13, 131, 132) contains at least one of the following materials: open-pored plastics material, closed-pored plastics material, foamed filling material, foamed material.
7. The packaging body (13, 131, 132) as claimed in claim 1, wherein the packaging body (13, 131, 132) contains a fire protection means comprising at least one of the following materials: open-pored plastics material, closed-pored plastics material, foamed filling material, foamed material.
8. The packaging body (13, 131, 132) as claimed in claim 1, wherein an outer face of the packaging body (13, 131, 132)

includes at least one of the following materials: hard plastics material, cardboard, plastics film, rubber film, rubber bands.

9. The packaging body (13, 131, 132) as claimed in claim 1, wherein the packaging body (13, 131, 132) is constructed in several portions and a connection device is provided to connect the portions.

10. The packaging body as claimed in claim 9, wherein the connection device comprises one or more of the following devices: joint connection, adhesive connection, thread-like connection, bayonet-like connection, connection having a ring element, plug type connection, pin-based connection, hinge-based connection.

11. The packaging body (13, 131, 132) as claimed in claim 1, wherein at least one information carrier which can be interrogated from the outer side is arranged on the packaging body (13, 131, 132).

12. The packaging body (13, 131, 132) as claimed in claim 11, wherein the information carrier comprises at least one RFID tag and/or at least one label having an optically readable code.

13. The packaging body (13, 131, 132) as claimed in claim 1, wherein the packaging body is configured on an outer face and/or on an inner face for the fitting of balancing elements.

14. The packaging body (13, 131, 132) as claimed in claim 1, wherein one or more retention devices are fitted to an outer face, in particular in order to carry the packaging body (13, 131, 132) and/or to separate portions of a multi-portion packaging body (13, 131, 132) from each other.

15. A method for producing a packaging unit (10) which comprises a packaging content (11) and a packaging body (13, 131, 132) which encloses the packaging content (11), the method comprising:

- providing the packaging content (11);
- providing the packaging body (13, 131, 132) in a state ready for receiving the packaging content (11);
- introducing the packaging content (11) into the packaging body (13, 131, 132); and
- closing the packaging body (13, 131, 132) wherein the packaging body (13, 131, 132) is a packaging body as claimed in claim 1.

16. The method as claimed in claim 15, wherein the packaging body (131, 132) is in several portions, and in that in closing step the portions of the packaging body (131, 132) are connected to each other.

17. The method as claimed in claim 15, wherein the weight distribution of the provided packaging content (11) is established and in that balancing elements which are fitted to the packaging body (13, 131, 132) are established therefrom.

18. The method as claimed in claim 15, wherein the weight distribution of the packaging body (13, 131, 132) is established with the packaging content (11) introduced and in that balancing elements which are fitted to the packaging body (13, 131, 132) are established therefrom.

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