

Description

[0001] The present invention relates to a container for shipping an item and to cushioning means for cushioning an item in a container during shipping according to the preambles of the independent claims.

[0002] A container for shipping an item and comprising cushioning means in the form of an inflatable volume is known for example from EP 2 407 389 A1. Such a container is used at the end of the packing and picking line in warehouses for packing and shipping items to a customer. The inflatable volume is defined by a plastic bag which is placed, after the items have been placed in the container, on top of the items. Thereafter the container is closed, and the plastic bag is inflated in order to fill the void volume in the container and to prevent the items from moving during shipping. It is also known in the prior art to place cushioning material in the form of bubble film in a container. The bubbles are already filled with air when the bubble film is placed in the container.

[0003] It is an object of the present invention to provide a container for shipping an item and to provide cushioning means for cushioning an item in a container which allow to reduce time and effort necessary for using the container.

[0004] This object is achieved with a container and a cushioning means with the features of the independent claims. Further embodiments of the invention are claimed in dependent claims.

[0005] The claimed container has the advantage that the cushioning means can be integrated in the container and therefore does not need to be manually added by a packer after placing the items to be shipped in the container. Furthermore, the plurality of inflatable partial volumes allows an easy adaptation of the cushioning means to the shape and size of the items inside the container. By consequence, with the inventive container and the inventive cushioning means, when the partial volumes are inflated and the container is closed, the items to be shipped are not only cushioned against shocks but also fixedly held in position inside the container.

[0006] More specifically, the present invention proposes a container for shipping a product. Such a container, by way of example, may be a classical box made of cardboard as it is common for shipping a product from an Internet warehouse to an individual customer. Such a container normally is used only once and then may be recycled. However, the container according to the invention may also be a reusable container which, by way of example, may be formed from plastic material, such as hard or foamed polystyrene or polypropylene material.

[0007] Part of the inventive container is a cushioning means for cushioning the product in the container. While the term "cushioning" means indicates to a cushioning function of the cushioning means, it is to be understood that the principal function of the cushioning means also may be the fixation of the item to be shipped in the container, that is to hold an item at a desired location within

the container and to prevent the item from moving inside the container during shipping.

[0008] The cushioning means according to the invention comprises a plurality of inflatable partial volumes arranged apart from each other. The partial volumes may be pneumatically connected to each other, but it is also possible that some of the partial volumes are pneumatically independent from each other. Furthermore, the partial volumes may be immediately adjacent each other such that at least in their inflated state their walls tend to resiliently contact each other, but it is also possible that they are spaced from each other such that even in the inflated state there is a space remaining between them. In contrast, for example, to bubble film the inventive cushioning means is formed and arranged such that it can be inflated while being arranged in the container. This inflation may take place prior to or after placing the items to be shipped in the container. Inflating the cushioning means does not only provide protection to the item to be shipped, but additionally provides a structural strengthening of the container. This is particularly advantageous in the case of a foldable container, where inflation even can help to unfold, that is to erect the container. This is even more advantageous in the case of a container which unfolds automatically or semi-automatically.

[0009] In a further embodiment, at least one partial volume comprises a base portion fixedly arranged adjacent a wall of the container and a cushioning portion extending from the base portion into an interior of the container at least when the partial volume is inflated. Inflation of the partial volume thus easily creates a "cushioning layer" between the item to be shipped and the wall of the container, which provides a high cushioning quality.

[0010] In a further embodiment hereto, the base portion comprises a first wall which is generally flat and arranged adjacent the wall of the container, and a second wall which is essentially parallel to the first wall and from which the cushioning portions extend. With this arrangement the cushioning means may be independent from the container and therefore can easily be replaced, if necessary, or inserted prior to placing the item in the container, or can be removed for reuse or recycling when the container is a disposable product.

[0011] In a further embodiment, at least one of the partial volumes of the plurality of inflatable partial volumes has, in the inflated state, an elongate shape extending from a wall into an interior of the container. By consequence, after inflation, a plurality of parallel partial volumes may be created between which for example a flat item to be shipped can be placed and fixedly secured during shipping. This is particularly advantageous if at least the outside material of the partial volumes is a high friction material, such as silicone or rubber or any other soft material or film.

[0012] In a further embodiment, at least one inflatable partial volume comprises a resilient shaping means providing a specific shape to the partial volume in a non-inflated state. With such a resilient shaping means the

reliability of the cushioning and/or fixation function is improved, especially in the case that the partial volumes are only partially inflated or are not inflated at all. This may be the case if a container is used with an item to be transported which is not fragile or which uses an important part of the interior volume or even more or less the entire interior volume of the container. The advantage of a soft and flexible cushioning means which is foldable when it is not inflated is that it considerably increases the volume inside the container which is available for placing an item.

[0013] In a further embodiment hereto, the resilient shaping means comprises an elastic spring wire and/or an elastic lattice structure. An elastic spring wire can easily be integrated in the partial volumes, for example in the form of a helix shape wire which can be molded together with the wall material of the cushioning means. An elastic lattice structure can be manufactured from the same material as the rest of the partial volume which allows an easier recycling in case of need. Both an elastic spring wire and an elastic lattice structure may be designed to have progressive resilient characteristics, that is an increasing resistance to compression. This may serve to increase and improve both the holding/blocking and the cushioning performance of the cushioning means.

[0014] In a further embodiment, it comprises at least a first cushioning means having a first plurality of partial volumes, the first cushioning means being arranged adjacent a first wall of the container, and at least a second cushioning means having a second plurality of partial volumes, the second cushioning means being arranged adjacent a second wall of the container. Such an arrangement further improves the cushioning and fixation function of the cushioning means inside the container.

[0015] In a further embodiment hereto, the first wall is a bottom wall and the second wall is a top wall. With such an arrangement, the item to be shipped can be clamped between the two pluralities of partial volumes arranged face to face to each other.

[0016] In a further embodiment hereto, the first wall is a bottom wall or a top wall and the second wall is a side wall. Such an arrangement provides additionally a lateral cushioning function.

[0017] It is, however, to be noted that partial volumes adjacent different walls of the container do not necessarily need to be provided by different cushioning means. It is also possible that one single cushioning means is arranged adjacent more than one single wall. For example, it might be possible that partial volumes of one single cushioning means are arranged adjacent a top wall and a bottom wall of the box, and that additionally, partial volumes of the same cushioning means are arranged adjacent the side walls. While the partial volumes adjacent the top and the bottom walls might be oriented essentially orthogonally to the top and bottom walls, the partial volumes adjacent the side walls might be arranged essentially in parallel to the sidewalls. It is also to be

understood that the different designs of cushioning means described hereinabove may be combined within a same container.

[0018] In a further embodiment, it comprises an inflating means for inflating the cushioning means. By doing so, no separate inflating means is needed, such that the container can be used in a large variety of conditions. The inflating means, by way of example, may be a manually actuated air pump. Especially in this case, but also in other cases, it is particularly preferred that the cushioning means comprises a non-return-valve which blocks the air inside the cushioning means from escaping unintentionally. The cushioning means may further comprise a purge valve for intentionally deflating the cushioning means.

[0019] In a further embodiment, the inflating means is actuated by pivoting a cover of the container. This takes into account that, when using a container for shipping an item, there must be always a manipulation of the cover, that is in many cases by a pivoting movement of the cover about a hinge, in order to open and close the container. The inventive container uses this movement for actuating the inflating means and for inflating the partial volumes. In a very simple embodiment, the inflating means may be a manually actuated pump which is actuated by a repeated pivoting movement of the cover flap of the container. The relation between the performance of the inflating means and the interior volume of the cushioning means may be such that a plurality of consecutive movements of the cover are needed in order to gradually and sufficiently inflate the cushioning means. However, in an alternative embodiment, the relation may be such that one single movement is sufficient to inflate the cushioning means.

[0020] In a further embodiment, the inflating means comprises an electrical pump. This is very comfortable and would not need a repeated pivoting movement of a cover flap of the container.

[0021] In a further embodiment, it comprises fixation means for fixedly attaching the cushioning means to a wall of the container. Such fixation means prevents the cushioning means from moving relative to the walls of the container during transportation of the container and therefore increases the reliability of the cushioning and fixation function of the cushioning means.

[0022] In a further embodiment, it comprises a deflation means for removing gas from the partial volumes. This is particularly advantageous in case of a reusable container which, after the item has been received by a receiver and has been removed from the container, is to be returned for example to the sender or to a specific collection address which collects the container for further use.

[0023] It is to be understood that the inventive cushioning means may comprise a system controlling the pressure inside the cushioning means, such as a visual manometer, an automatic pressure limiter, control means for controlling the deformation of the container, a volume control, or the like. There might also be provided

a detection means for detecting a loss of pressure and a controller for controlling an electrical air pump in order to reinflate the cushioning means in case of need. When such an automatic control of the inflation status of the cushioning means is provided, the reliability of the blocking and cushioning function of the cushioning means during transport is increased. An automatic control of the inflation status of the cushioning means is also advantageous in case of a long transport and in case of a transport by aircraft where the outside pressure may considerably vary.

[0024] In a further embodiment, at least one partial volume comprises on its outer surface a plurality of ribs extending preferably in the longitudinal direction of the partial volume. These ribs allow a polyvalent locking function of the item by the cushioning means.

[0025] Other aspects and advantages of the invention will become apparent from the following description, taken in conjunction with the accompanying drawings, illustrating by way of example the principles of the invention. In the drawing is shown in

- Figure 1 a schematic side sectional view of an embodiment of a container for shipping an item comprising a cushioning means having a plurality of inflatable partial volumes;
- Figure 2 a representation similar to figure 1 of another embodiment;
- Figure 3 a representation similar to figure 1 of still another embodiment;
- Figure 4 a schematic partial side sectional view similar to figure 1 of still another embodiment;
- Figure 5 a perspective view of a cushioning means used in 1 of the container of figures 1-4;
- Figure 6 a view from above onto the cushioning means of figure 5;
- Figure 7 a perspective view of a still another embodiment of a container comprising a cushioning means having a plurality of inflatable partial volumes;
- Figure 8 a perspective view of the cushioning means of figure 7;
- Figure 9 a perspective view of a resilient shaping means to be used for a partial volume of the cushioning means of figures 7-8;
- Figure 10 a side view of a plurality of partial volumes including another embodiment of a resilient shaping means;

Figure 11 a perspective schematic view of a cushioning means having a plurality of inflatable partial volumes together with an integrated inflating means;

Figure 12 a partial side sectional view of the cushioning means of figure 11 and a wall of a container and a fixation means;

Figure 13 a partial side sectional view of a connector of the cushioning means of figure 11;

Figure 14 a side sectional view similar of the container of figure 2 additionally comprising a manually operated inflating means;

Figure 15 a schematic side sectional view of a container with another embodiment of a cushioning means; and

Figure 16 a schematic side sectional view similar to figure 15 of a container with still another embodiment of a cushioning means.

[0026] Elements and portions which are functionally equivalent are designated with the same reference numerals in different embodiments. Furthermore, portions and elements which have already been referred to in previous figures are not always designated with reference numerals in subsequent figures.

[0027] A container in figure 1 is generally designated with reference numeral 10. It has a rectangular cross-section with a bottom wall 12, side walls 14 and a top wall 16 in the form of a movable cover. The container 10 may be a classical disposable cardboard container as it is typically used for shipping products from Internet warehouses to private customers. However, it is particularly preferred that the container 10 is a foldable reusable box made of a hard plastic material or, still more preferred, made of a foamed plastic material such as expanded polystyrene or expanded polypropylene.

[0028] The walls 12, 14, and 16 define an inner volume 18 of the container 10 which is intended to receive one or more items 20 to be shipped. The container 10 further comprises a cushioning means 22 comprising a plurality of inflatable partial volumes 24. The partial volumes 24 and/or the overall cushioning means 22 may be fabricated from a resilient and elastic gas-tight material such as silicone, rubber, or the like.

[0029] As can be easily seen from figure 1, the partial volumes 24 are arranged apart from each other. This means that the partial volumes 24 may be immediately adjacent each other such that at least in their inflated state their walls tend to resiliently contact each other. However, it is also possible that they are spaced from each other such that even in the inflated state there is a space remaining between them. This latter type of arrangement is shown in figure 1.

[0030] As can be seen from figure 1, the container 10 comprises a first lower cushioning means 22a and a second upper cushioning means 22b. Each cushioning means 22a and 22b has a base portion 26 which is arranged adjacent the bottom wall 12 or the top wall 16, respectively. A cushioning portion 28 comprising the partial volumes 24 extends from the base portion 26 into the inner volume 18 of the container.

[0031] The base portion 26 comprises a first wall 30 and a second wall 32. The first wall is generally flat and arranged adjacent the bottom wall 12 or the top wall 16, respectively. The second wall 32 is essentially parallel to the first wall 30. The cushioning portions 28 comprising the inflatable partial volumes 24 extend from said second wall 32 essentially orthogonally into the inner volume 18 of the container 10.

[0032] In the embodiment shown in figure 1, the first cushioning means 22a and the second cushioning means 22b are not pneumatically connected to each other. Instead, they are pneumatically and also structurally separate to each other. By doing so, the top wall 16 to which the second cushioning means 22b is associated and fixedly arranged, may be entirely lifted and removed from the remainder of the container 10. However, as can be seen from figure 2, in another embodiment the cushioning means 22a and 22b may be pneumatically and structurally connected to each other.

[0033] As can be seen from figure 1, the container 10 comprises an inflation port 34 with a closure and opening valve 36. The inflation port 34 is intended to be connected to an external inflating means (not shown) for inflating the cushioning means 22 and the partial volumes 24 while the partial volumes 24 are arranged in the inner volume 18 of the container 10.

[0034] The partial volumes 24 of the container as shown in figure 1 have, in the inflated state as shown in figure 1, an elongate shape extending essentially orthogonally from the bottom wall 12 and the top wall 16, respectively, into the inner volume 18. In the embodiment shown in figure 1, the shape of a partial volume 24, as seen from the side, is oval. However, other shapes may be possible, such as cylindrical or conical, as will be seen further below.

[0035] It is further to be noted that in the embodiment shown in figure 1, the first and lower cushioning means 22a comprises, at its lateral edges and close to the side walls 14, specific partial volumes 24' which are longer in their longitudinal direction than the other partial volumes 24. Or, more specifically: while the specific partial volumes 24 close to the side walls 14 extend from the bottom wall 12 up to the top wall 16, the other partial volumes 24 extend only over approximately 30% of the internal height of the inner volume 18 of the container 10.

[0036] The container 10 may be used as follows: first, the cushioning means 22a and 22b are arranged in the inner volume 18 of the container 10. Thereafter, an inflating means (not shown) is connected to the inflation port 34, and air is entered into the cushioning means 22a

and 22b and the partial volumes 24. By doing so, the partial volumes 24 are inflated and gain a taut shape. Then, the items 20 are arranged inside the container 10, and the top wall 16 together with the second cushioning means 22b which has also previously be inflated is put on top of the side walls 14 in order to close the container 10.

[0037] It is to be noted that of course the sequence may also be inversed. This means that it also may be possible that first the items 20 are placed in the inner volume 18 of the container 10 and that only thereafter the cushioning means 22 are inflated.

[0038] As can be seen from figure 1, a flat item 20 can be arranged between two adjacent partial volumes 24 of the first cushioning means 22a, as is shown by way of example for the second and fourth items 20 from the left. The other items 20 are slightly clamped or squeezed between the partial volumes 24 of the upper second cushioning means 22b and the partial volumes 24 of the lower first cushioning means 22a. The partial volumes 24 of the cushioning means 22 therefore do not only serve for cushioning the items 20 during transport of the container 10, but also for securely holding the items 20 in place during transport.

[0039] When the container 10 is received by the receiver, the receiver removes the top wall 16 such that he can take out the items 20 from the inner volume 18 of the container 10. Thereafter (or even before as the first step), the closure valve 36 can be opened in order to deflate the cushioning means 22a and 22b and to thereafter fold the container 10 into a flat configuration in order to send it back for example to a collection site for further use. If necessary, a separate deflation means (not shown) may be attached to the inflation port 34 in order to remove the air from the inside of the cushioning means 22. Alternatively, the cushioning means 22a and 22b may be removed from the container 10 and be thrown away separately from the remainder of the container 10.

[0040] Figure 2 shows an embodiment of a container 10 where the upper second cushioning means 22b and the lower first cushioning means 22a are pneumatically and structurally connected to each other by means of the specific partial volumes 24 arranged on the right side adjacent the right side wall 14. As can be seen from figure 2, a relatively large item 20 can be arranged between the tips of the partial volumes 24 extending from the bottom wall 12 and the top wall 16, respectively.

[0041] Figure 3 shows an embodiment of a container 10 with cushioning means having partial volumes 24 having a generally cylindrical shape with a rounded tip. The partial volumes 24 extending from the bottom wall 12 are arranged such that they mutually interlock with the partial volumes extending from the top wall 16. Furthermore, in the embodiment of figure 3 the partial volumes 24 extending from the bottom wall 12 and extending from the top wall 16 extend over approximately 50% of the height of the inner volume 18 of the container 10 such that the almost meet in the middle of the inner volume 18.

[0042] In the embodiment of figure 4, the container 10 additionally comprises second cushioning means 22b with a plurality of partial volumes 24 extending in lateral direction from the side wall 14.

[0043] Figures 5 and 6 again show an embodiment of a cushioning means 22 with a plurality of partial volumes 24 having an essentially cylindrical shape. However, each partial volume 24 comprises on its outer surface a plurality of ribs 38 extending in the longitudinal direction of the partial volumes 24. Furthermore, it can be seen from figures 5 and 6 that the base portion 26 of the cushioning means 22 has a rectangular shape and therefore can be easily fit into a typical rectangular box-type container 10.

[0044] In figures 7 and 8 a container 10 is shown with a cushioning means 22 having partial volumes 24 having a conus shape with a rounded tip. Again, the base portion 26 is rectangular.

[0045] Figure 9 is a perspective representation of a resilient shaping means 40 to be used for the partial volumes 24 of the cushioning means of figures 7-8. In the embodiment shown in figure 9 the resilient shaping means 40 has an elastic 3D-lattice or grid-type structure. It might be manufactured from silicone or another resilient plastic material and may be manufactured for example by 3D-printing. A wall of the inflatable volume 24 may be arranged around the resilient shaping means 40. Alternatively, the resilient shaping means 40 and the gas-tight wall of the cushioning means 22 and the partial volumes 24 may be manufactured by 2-component-injection-molding.

[0046] Figure 10 shows a plurality of partial volumes 24 including an alternative embodiment of a resilient shaping means 40. Other than in figure 9, the resilient shaping means 40 in figure 10 comprises a helically formed elastic spring wire wherein the helix also has a generally conus shape. Again, the resilient shaping means 40 of figure 10 may be surrounded by the elastic material of the partial volumes 24 or maybe manufactured together with the elastic and/or flexible material of the partial volumes 24, for example by 2-component-injection-molding.

[0047] Figures 11-13 show a cushioning means 22 with an integrated inflating means 42 in the form of an electrical pump. Such an electrical pump 42 might be similar to small air pressure pumps known from mobile blood pressure measurement devices. The electrical pump may also include a pressure sensor which allows to control inflation in a closed loop. It even might be possible that air pressure is monitored during shipping of the container 10 and that the pump 42 is actuated if the air pressure drops below a certain value.

[0048] Furthermore, the cushioning means 22 of figure 11 comprises a connector 44 for connecting the inflating means 42 to a power source 46, such as a battery or any other electrical power source, if necessary. Also, figure 11 shows an air inlet 48 and an air outlet 50. As may be readily understood by the skilled person the inflating

means 42 may serve to inflate the cushioning means 22 such that air is drawn through inlet 48 into the interior of the partial volumes 24. However, by reversing the function of the inflating means 42, it also may serve as a deflation means for removing gas from the partial volumes 24, such that air is blown out from outlet 50.

[0049] Furthermore, the cushioning means 22 has a base portion 26 of rectangular shape, wherein in each corner of the base portion 26 a connection hole 52 is provided. As can be seen from figure 12, the connection hole 52 serves for fixedly attaching the cushioning means 22 to a wall, for example the bottom wall 12, of the container 10. For this purpose, a fixation means 52, for example in the form of a screw or a hooked bolt, is inserted through the connection hole 52 into the wall 12.

[0050] Figure 14 is similar to figure 2. However, the container 10 of figure 14 additionally comprises an inflating means 42 in the form of a manually actuated pump. By means of a non-shown mechanism, the inflating means 42 of figure 14 is connected to the top wall 16 of the container 10, which is hinged to the remainder of the container 10 such that it can be pivoted around the hinge (not shown), the pivoting movement being indicated by arrow 56. By consequence, a user may repeatedly actuate the bottom wall 12 such that it is pivoted around the hinge in order to actuate the inflating means 42 and in order to inflate the partial volumes 24 of cushioning means 22.

[0051] While in the above embodiments many of the partial volumes 24 of a cushioning means 22 have almost similar shape, it can be readily understood that it is also possible that the partial volumes of a cushioning means might have different shapes and/or sizes in order to better fit to specific applications and specific shapes and sizes of items to be cushioned. For example, a partial volume may be provided having a relatively low longitudinal extension, that is being relatively short, this partial volume being surrounded by partial volumes having a relatively long longitudinal extension, that is being relatively long.

[0052] Figure 15 relates to a different embodiment of a container 10 having a cushioning and fixation means 22. The cushioning means 22 of figure 15 is not inflatable, but is deflatable for cushioning. To this end, the cushioning means 22 of figure 15 comprises a bag 58 which is fixed to the inner edges of the container 10 between the bottom wall 12 and the sidewalls 14 and between the sidewalls 14 and the top wall 16, respectively. Furthermore, the bag 58 comprises a zip type closing and opening means 60 with which an interior volume 62 of the back 58 can be closed in a gas-tight manner. It further comprises a non-shown non-return-valve which allows to evacuate the interior volume 62 of the bag 58 and to hold the vacuum inside the interior volume 62 during transport of the container 10.

[0053] The container 10 and the cushioning means 22 of figure 15 are used as follows: when the container 10 is open, the closing and opening means 60 of the bag 58 is opened and the item 20 is inserted into the interior

volume 62 of the bag 58. Thereafter, the closing and opening means 60 is closed, and the air inside the interior volume 62 of the bag 58 is removed, as is indicated by an arrow 64 in figure 15. Or, in other words: the interior volume 62 is more or less evacuated. By consequence, the bag 58 becomes snugly fit around the item 20 and therefore holds the item 20 "suspended" in the inner volume 18 of the container 10. An advantage of this type of cushioning and fixation means 22 is that the item 20 (for example laundry or clothes) inside the bag 58 is compressed by the walls of the bag 58 and therefore the volume of the item 20 might be reduced, which allows to gain space inside the container 10. Furthermore, this type of cushioning and fixation means 22 protects the item 20 from humidity and other atmospheric conditions during transport.

[0054] A further embodiment of a cushioning means 22 in a container 10 is shown in figure 16, whereas the cushioning means 22 again comprises a bag 58 which however, in the embodiment of figure 16, is wrapped around the item 20 to be transported and cushioned inside the container 10. In the interior volume 62 of the bag 58, a multitude of small plastic beads 66 is arranged formed from foamed plastic material such as expanded polystyrene or expanded polypropylene. In operation, the bag 58 is placed such that it surrounds the item 20 and then the interior volume 62 is evacuated, that is air is removed from the interior volume 62. For this purpose, the bag 58 comprises a non-shown non-return-valve for creating and keeping the vacuum and a purge valve for admitting air to flow into the bag 58 after use. By consequence, after evacuation the bag 58 becomes solid and snugly fits around the plastic beads and thus forms a solid foam body surrounding the item 20 to be shipped. When the item 20 is to be removed, the purge valve is opened such that air enters the bag 58 and the bag 58 returns into its flexible condition.

[0055] The embodiments of figures 15 and 16 relate to inventions which may be considered separate from the common inventive idea of figures 1-14 and which therefore might be prosecuted in divisional applications, if necessary.

Claims

1. A container (10) for shipping an item (20), comprising a cushioning means (22) for cushioning the item (20) in the container (10), the cushioning means (22) comprising at least one inflatable volume (24) arranged inside the container (10), **characterized in that** the cushioning means (22) comprises a plurality of inflatable partial volumes (24) arranged apart from each other, the partial volumes (24) being inflatable while being arranged in the container (10).
2. The container (10) of claim 1, wherein the cushioning means (52) comprises a base portion (50) fixedly

arranged adjacent a wall (12, 16) of the container (10) and a cushioning portion (28) extending from the base portion (26) into an interior of the container (10) at least when the partial volume (24) is inflated.

3. The container (10) of claim 2, wherein the base portion (26) comprises a first wall (30) which is generally flat and arranged adjacent the wall (12, 14, 16) of the container (10), and a second wall (32) which is essentially parallel to the first wall (30) and from which the cushioning portions (28) extend.
4. The container (10) of at least one of the preceding claims, wherein at least one of the partial volumes (24) of the plurality of inflatable partial volumes (24) has, in the inflated state, an elongate shape extending from a wall (12, 14, 16) into an interior (18) of the container (10).
5. The container (10) of at least one of the preceding claims, wherein at least one inflatable partial volume (24) comprises a resilient shaping means (40) providing a specific shape to the partial volume (24) in a non-inflated state.
6. The container (10) of claim 5, wherein the resilient shaping means (40) comprises an elastic spring wire and/or an elastic lattice structure.
7. The container of at least one of the preceding claims, wherein it comprises at least a first cushioning means (22a) having a first plurality of partial volumes (24), the first cushioning means (22a) being arranged adjacent a first wall (12; 16) of the container (10), and at least a second cushioning means (22b) having a second plurality of partial volumes (24), the second cushioning means (22b) being arranged adjacent a second wall (16; 14) of the container (10).
8. The container (10) of claim 7, wherein the first wall is a bottom wall (12) and the second wall is a top wall (16).
9. The container (10) of claim 7, wherein the first wall is a bottom wall or a top wall (16) and the second wall is a side wall (14).
10. The container (10) of at least one of the preceding claims, wherein it comprises an inflating means (42) for inflating the cushioning means (22).
11. The container (10) of claim 10, wherein the inflating means (42) is actuated by pivoting a cover (16) of the container (10).
12. The container (10) of at least one of claims 10-11, wherein the inflating means (42) comprises an electrical pump.

13. The container (10) of at least one of the preceding claims, wherein it comprises fixation means (54) for fixedly attaching the cushioning means (22) to a wall (12) of the container (10). 5
14. The container (10) of at least one of the preceding claims, wherein it comprises a deflation means (42) for removing gas from the partial volumes (24). 10
15. The container (10) of at least one of the preceding claims, wherein at least one partial volume (24) comprises on its outer surface a plurality of ribs (38) extending preferably in the longitudinal direction of the partial volume (24). 15
16. A cushioning means (52) for cushioning an item (20) in a container (10) during shipping, the cushioning means (22) comprising at least one inflatable volume (24) arrangeable in the container (10), **characterized in that** the cushioning means (22) comprises a plurality of inflatable partial volumes (24) arranged apart from each other, the partial volumes (24) being inflatable while being arranged in the container (10). 20

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Fig. 3

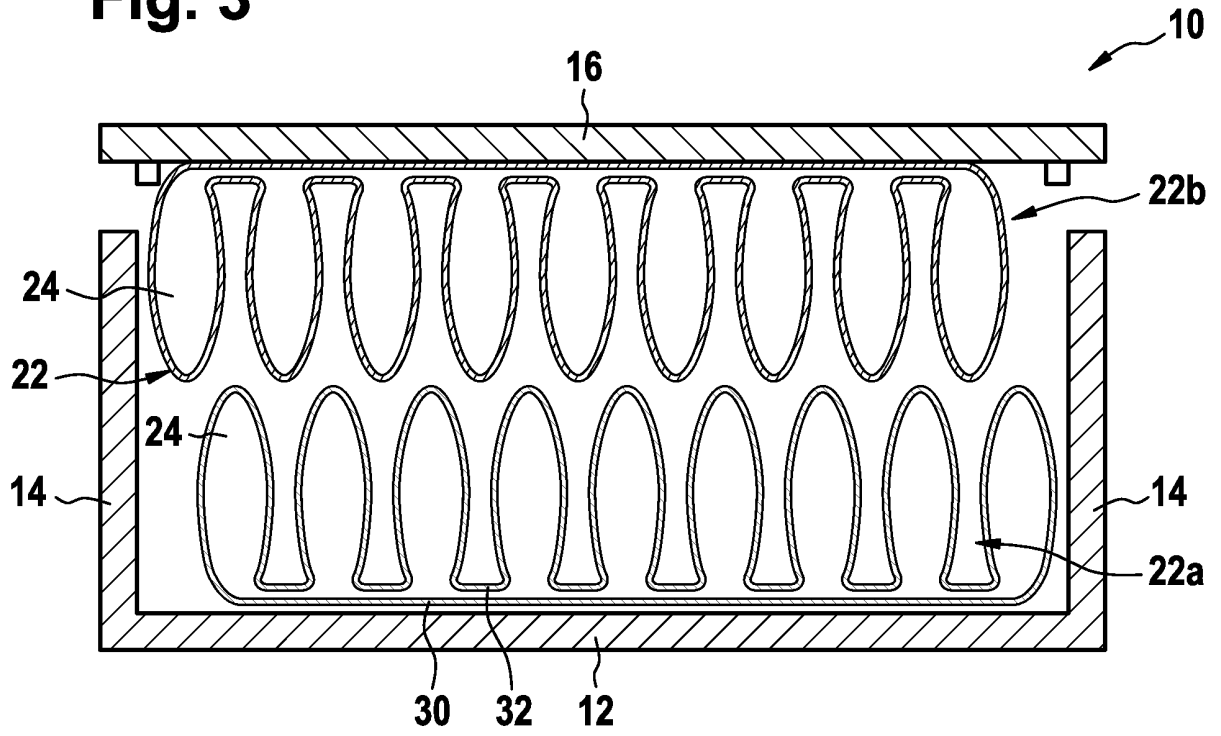
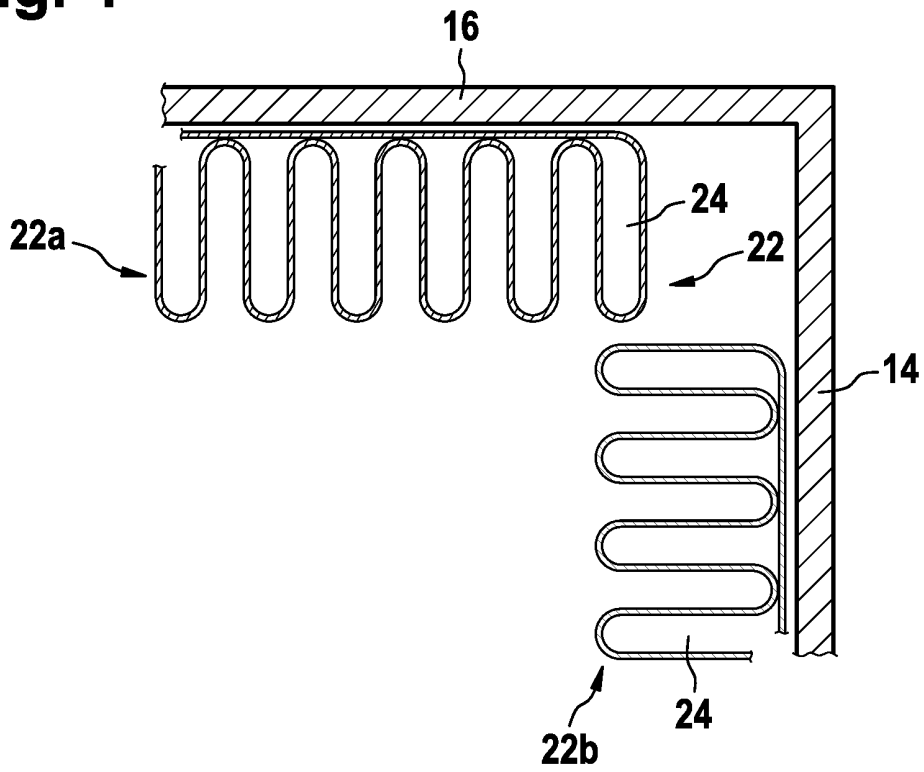


Fig. 4



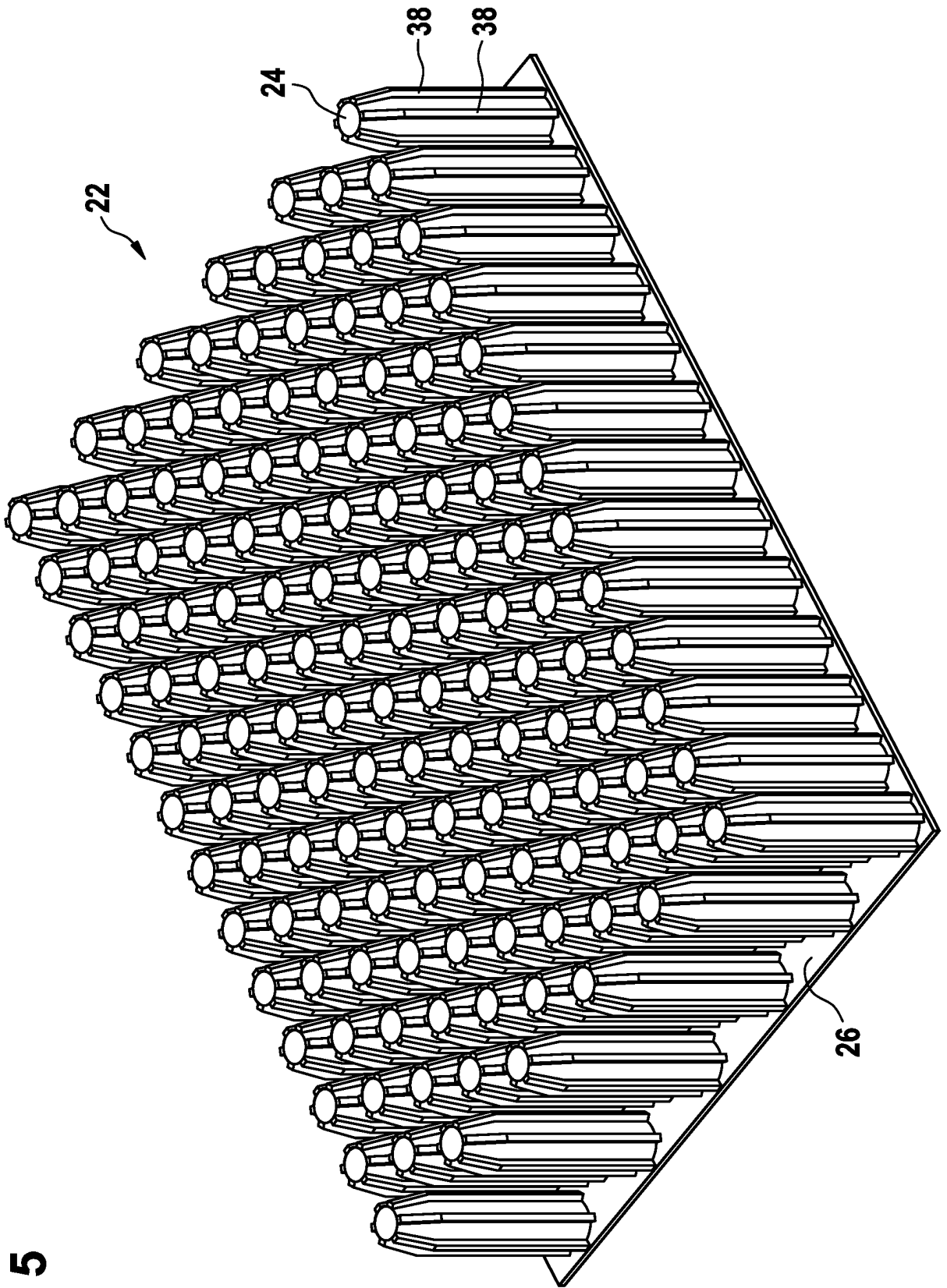


Fig. 5

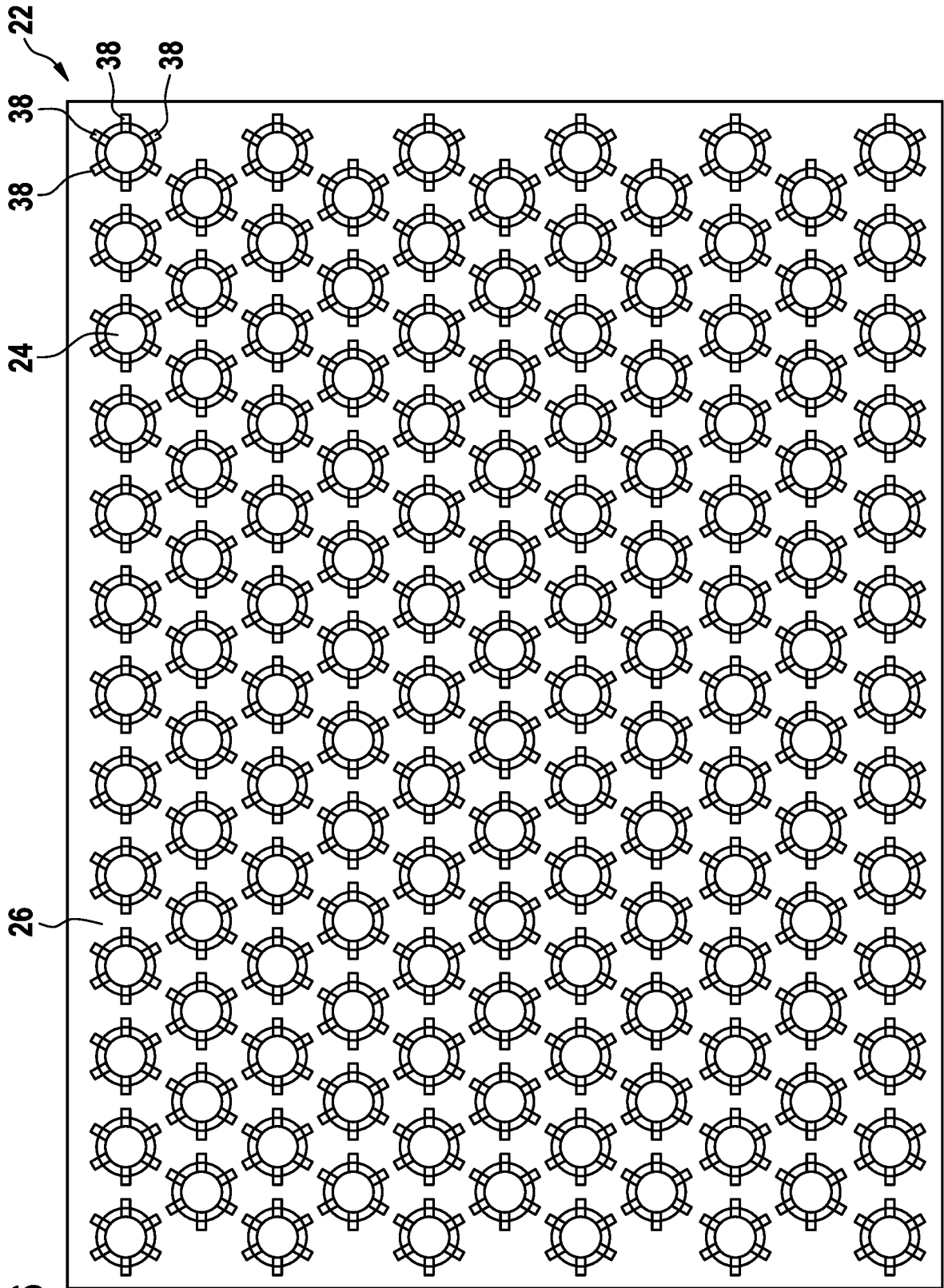


Fig. 6

Fig. 7

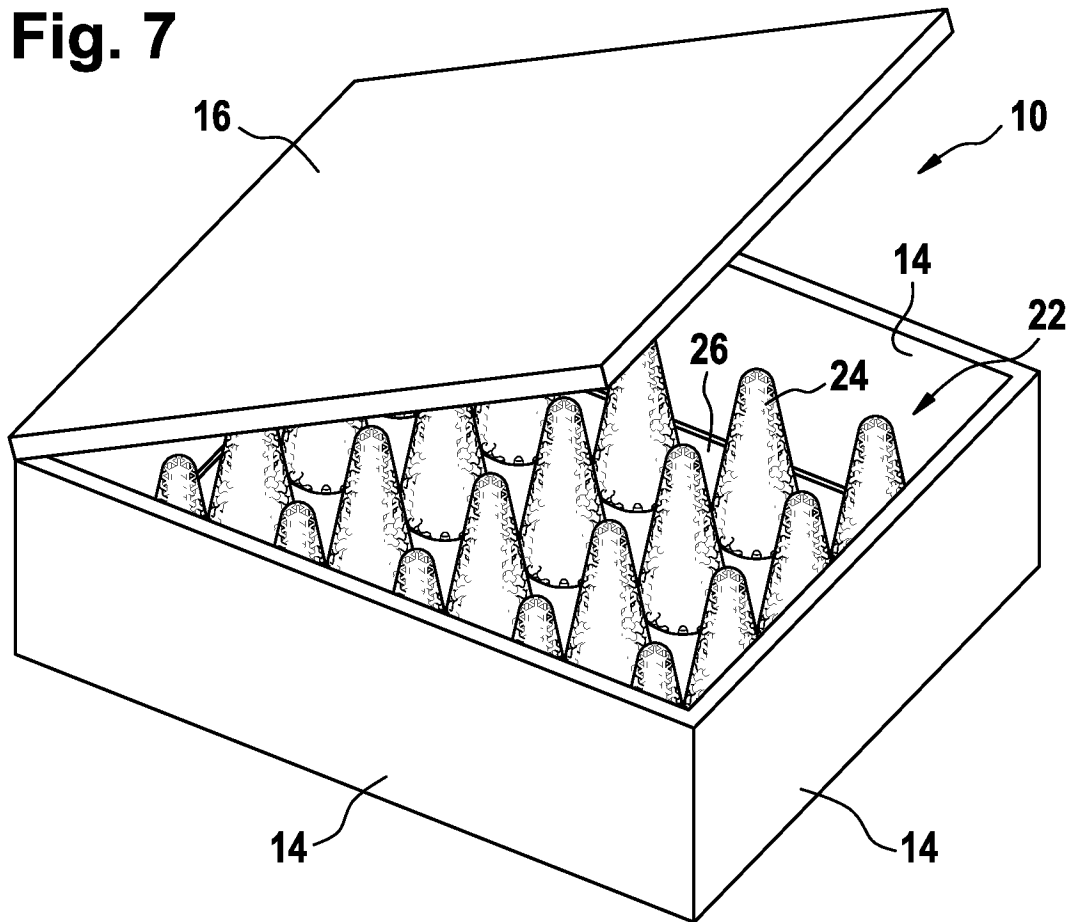


Fig. 8

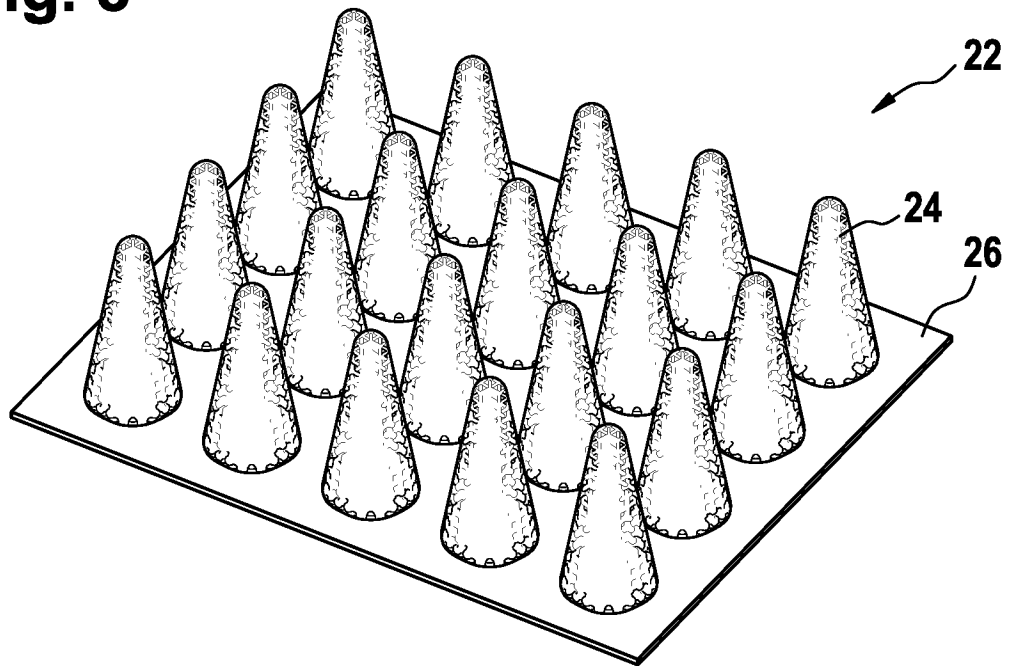


Fig. 9

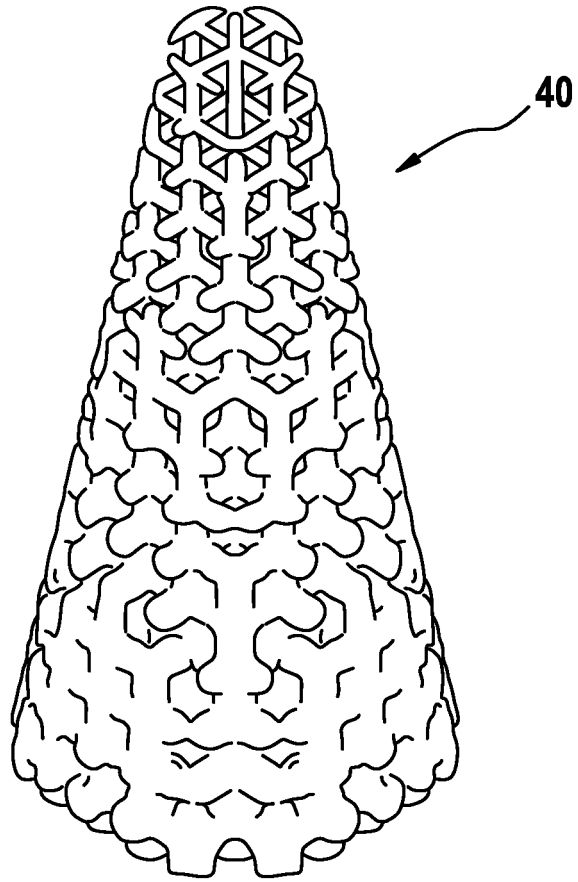


Fig. 10

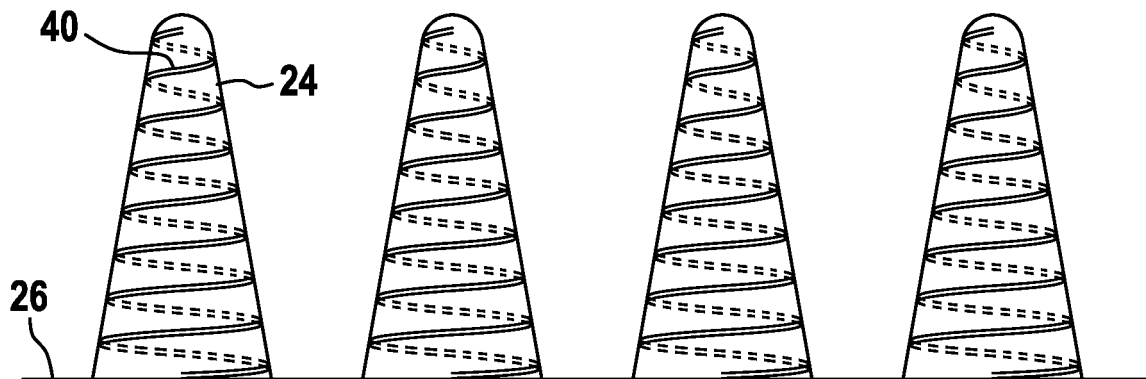


Fig. 11

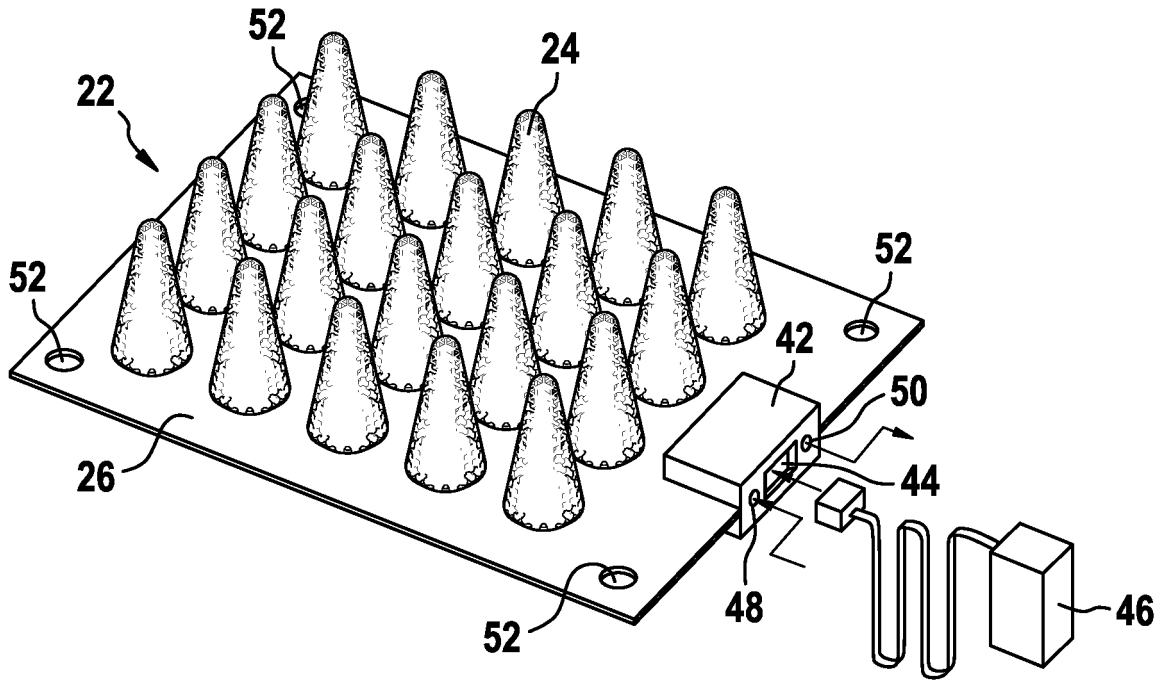


Fig. 12

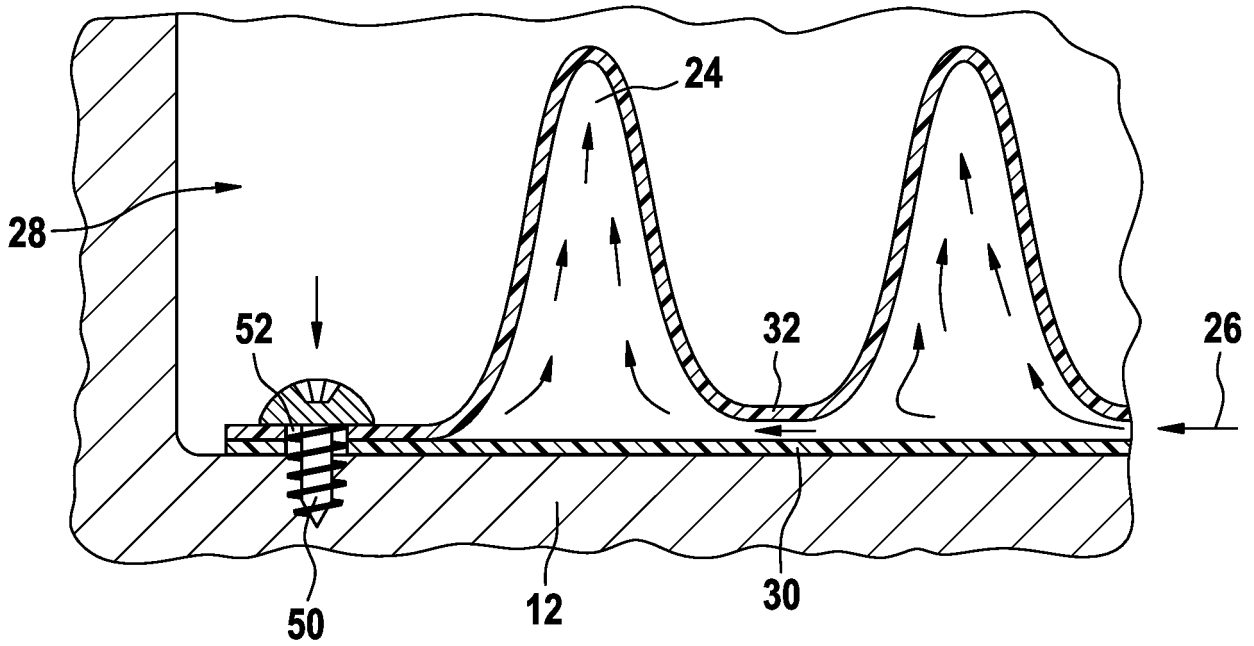


Fig. 13

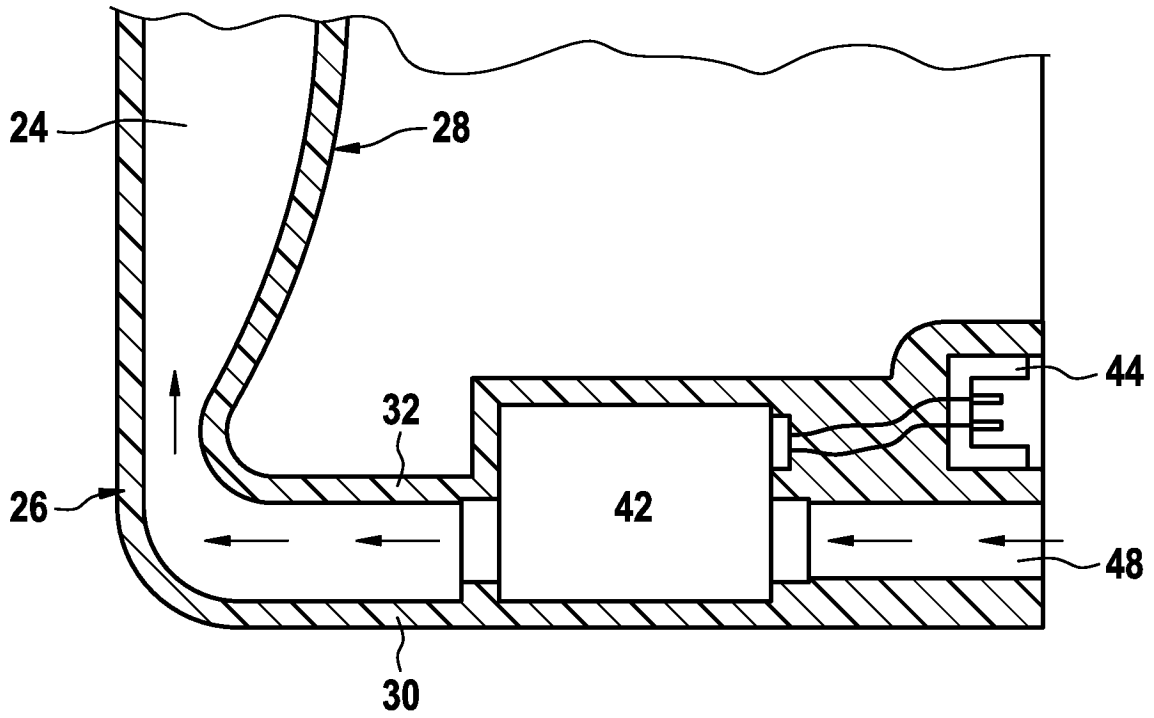


Fig. 14

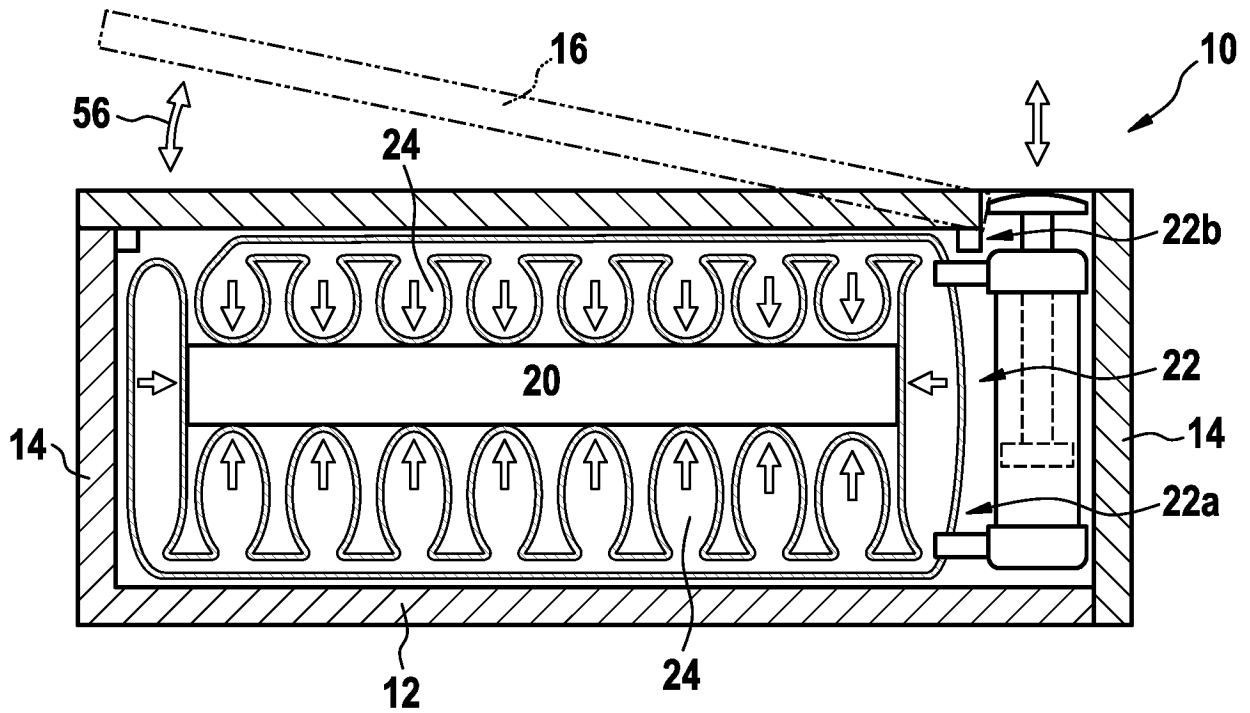


Fig. 15

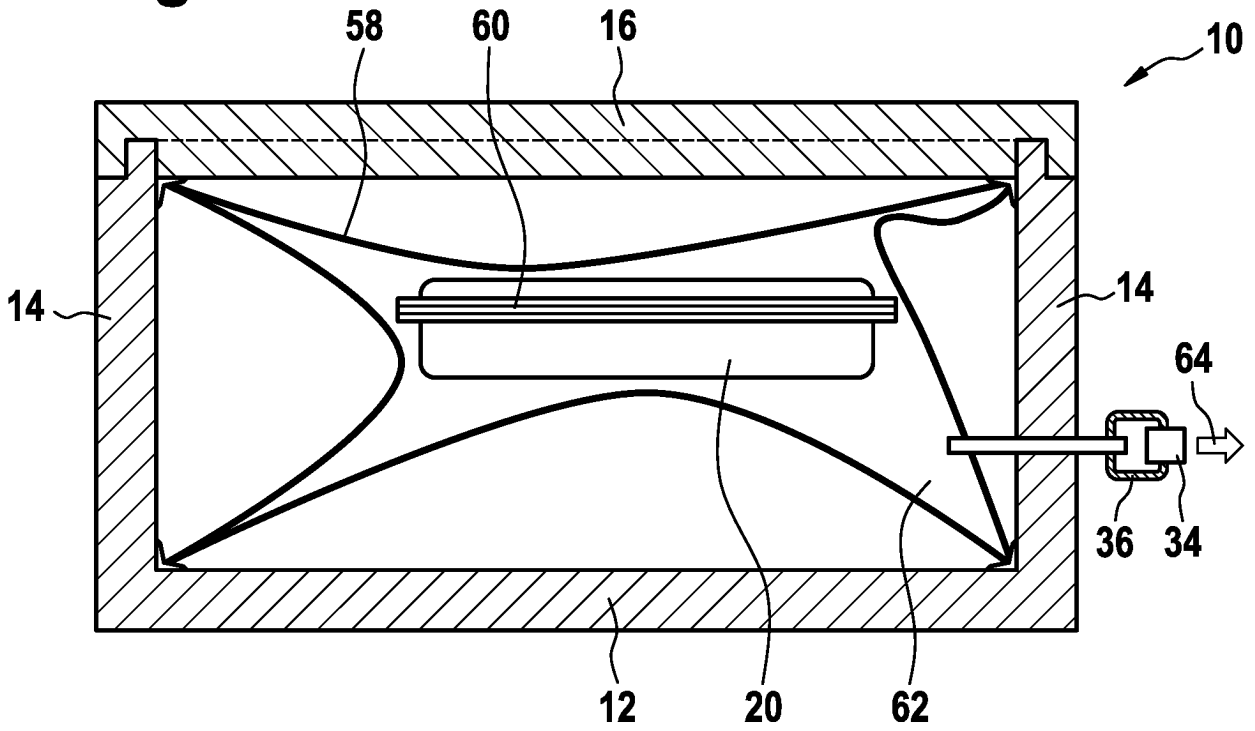
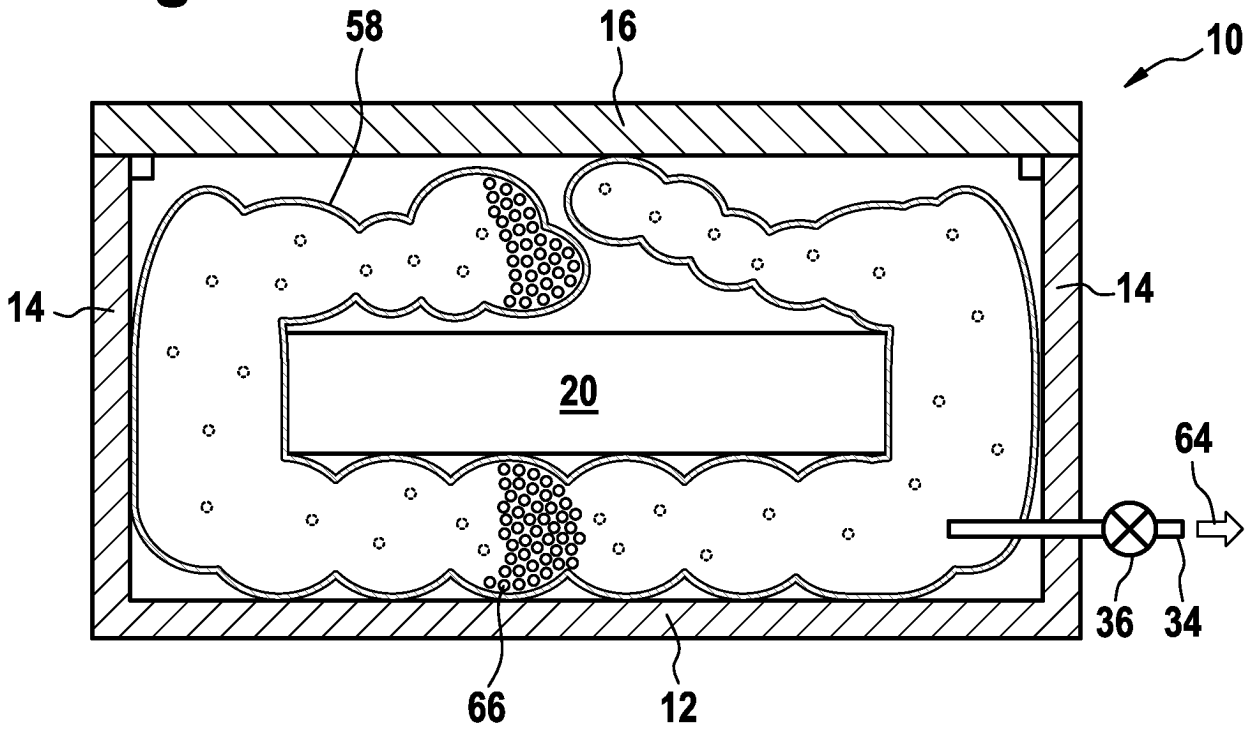


Fig. 16





EUROPEAN SEARCH REPORT

Application Number
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A	* page 5, line 13 - page 9, line 11; claims 1-15; figures 1-25 *	5,6,11, 15	
X	DE 10 2012 102432 A1 (WOLF RIMA [DE]) 27 September 2012 (2012-09-27)	1-4, 7-10,14, 16	
	* paragraph [0090] - paragraph [0125]; claims 1-20; figures 1-12F *		
			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 30 April 2020	Examiner Janosch, Joachim
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