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(54) **DEVICE FOR STORING, TRANSPORTING, AND DISPENSING A LIQUID; TOOL**

(57) The present invention relates to a device (1) for storing, transporting, and dispensing a liquid, comprising:
[a] an outer container (2) formed by a panel (4) made of sheet material with longitudinal folding lines (6) defining side faces (30), transverse folding lines (8) defining flaps (10), the panel (4) itself being foldable forming a hollow prism,
[b] a bag (12) with a tap (14) with retention means (16), and
[c] a front cover (18) with laterally projecting flanges (22).

In the assembled state, the flaps (10) are folded towards the inside of the container (2), parallel to the inner face of the prism to form a front end of the container. Some of the flaps (10) have holes (26). The flanges (22) fit in the holes (26), the front cover (18) being recessed with respect to a plane (P1) passing through the front edge of the container (2) and a reinforcing lip (28) having a depth (H1) being formed. The front cover (18) has a preformed area (24) in which the tap (14) is housed.

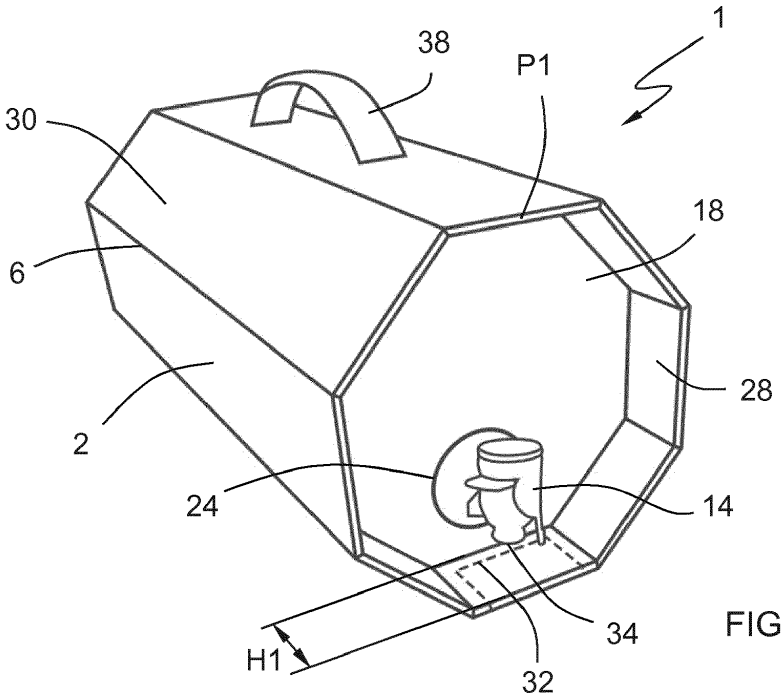

FIG. 1

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Description

Field of the invention

[0001] The invention relates to a device for storing, transporting, and dispensing a liquid, comprising: an outer container formed by a panel made of sheet material, comprising: a plurality of longitudinal folding lines extending in the longitudinal direction of said panel and separating in said panel side faces of said container, a plurality of first transverse folding lines extending in a transverse direction of said panel to form first flaps in said panel, said panel being foldable along said longitudinal folding lines, such that in the assembled state of said device, a hollow prism having a closed polygonal cross-section is formed, an inner bag comprising a tap for dispensing said liquid, said bag being arranged inside said outer container in said assembled state of said device, and said tap having retention means so that, in said assembled state, said tap is immobilized with respect to said container.

[0002] The invention also relates to a tool for manufacturing a device according to the invention.

State of the art

[0003] A device for storing, transporting, and dispensing a liquid of the type described above, known as bag-in-box, is known in the food sector. This format is often used in the food distribution sector for liquids as varied as wine, oil, water, beer, juice, refreshments, or similar edible liquids in formats of 1.5, 2, 3, 5, 10, 15, or 20 liters. One of its major advantages is that it allows long-term preservation of the product contained therein and the device is furthermore easily recyclable.

[0004] This known device consists of an outer container in the form of a parallelepiped cardboard box containing an inner bag in which an edible liquid is stored. This device serves not only as a storage and transport container, but also as a dispenser. To that end, the bag is manufactured in a composite sheet material of plastic and aluminum and has a dispensing tap.

[0005] In the distribution position, the bag with the tap are completely concealed inside the outer container. The outer container has a foldable perforated tab. To enable dispensing the liquid, the tab must be folded and the tap extracted. The tap has retention means as a result of which it can be placed in the opening which the tab leaves free.

[0006] As a result of its box-like configuration, outer containers of this type can easily deform during transfer and storage and may damage the inner bag. Furthermore, also as a result of its configuration, the tap must be concealed before first use given that the tap could be easily damaged. The tap could also be easily damaged once extracted.

Summary of the invention

[0007] It is an object of the invention to provide a device for storing, transporting, and dispensing a liquid of the type indicated above, which better protects the inner bag, as well as the tap.

[0008] This purpose is achieved by means of a device for storing, transporting, and dispensing a liquid of the type indicated above, characterized in that it further comprises at least one front cover made of sheet material and having a shape complementary to the inner contour of said prism, said at least one front cover having at least two assembly flanges projecting from the sides of said at least one front cover, in that in said assembled state, said first flaps are folded along said first transverse folding lines towards the inside of said outer container, such that in said assembled state, said first flaps are arranged inside said prism, parallel to the inner face of said prism to form a front end of said container, and some of said flaps have first holes spaced apart from said first transverse folding lines, said first holes being configured such that, in said assembled state, said at least two flanges of said at least one front cover fit in said first holes, said at least one front cover being recessed with respect to a plane passing through the respective front edge of said container and a reinforcing lip having a depth being formed between said plane and the front face of said front cover, and in that said at least one front cover has a preformed area and in said assembled state, said tap is housed in said preformed area of said at least one front cover through said retention means.

[0009] The formation of the lip as a result of folding the flaps inwards, combined with the front cover, reinforces the outer container of the device in a very significant manner. Precisely, the tap is housed in the area of the front cover, such that the inner bag is better protected than in devices of the state of the art.

[0010] Moreover, in its more general aspect, the device can have the tap pre-assembled in the outer container. Nevertheless, it can also be used like in the state of the art, such that before using it, there is a need to break a perforation in the front cover and place the tap in the dispensing position.

[0011] In a particularly preferred manner, the device is a device for storing, transporting, and dispensing an edible liquid.

[0012] The invention further includes a number of preferred features that are object of the dependent claims and the utility of which will be highlighted hereinafter in the detailed description of an embodiment of the invention.

[0013] To even further improve the rigidity of the device, said device comprises at least one rear cover made of sheet material and having a shape complementary to the inner contour of said prism, said at least one rear cover having at least two assembly flanges projecting from the sides of said at least one rear cover, in said assembled state, said first flaps are folded along said

first transverse folding lines towards the inside of said outer container, such that in said assembled state, said first flaps are arranged inside said prism, parallel to the inner face of said prism to form a rear end of said container, and some of said flaps have first holes spaced apart from said first transverse folding lines, said first holes being configured such that, in said assembled state, said at least two flanges of said at least one rear cover fit in said first holes, said at least one rear cover being recessed with respect to a plane passing through the respective rear edge of said container and a reinforcing lip having a depth being formed between said plane and the front face of said rear cover.

[0014] Another problem considered in the invention is to protect the tap against impacts both during storage and during use. To that end, in another embodiment said first holes are spaced apart from said first transverse folding lines by a distance and said first flaps have a length such that, in said assembled state, the front end of said tap is, at most, flush with said plane. In that sense, in addition to reinforcing the outer container, the lip itself prevents the tap from being able to readily receive impacts, preventing the movement or removal thereof.

[0015] Furthermore, to facilitate the dispensing of the liquid and placement of the cup receiving the liquid without compromising proper tap protection during storage before using the device, in another alternative embodiment a side face of said container and said first flap corresponding with said side face have a perforation extending to both sides of the first transverse folding line separating them, with said perforation coinciding with the outlet of said tap in said assembled state to enable breaking said lip along said perforation and freeing said outlet of said tap.

[0016] Alternatively, in another embodiment which seeks to simplify the opening of the device, a first flap, which in said assembled state is facing the outlet of said tap, is at least partially shorter to leave said outlet of said tap free. This prevents the need to tear off the part of the lip arranged facing the outlet of the tap.

[0017] Another problem solved by the invention is to assure proper holding of the tap at all times. To that end, in another alternative embodiment the device comprises two front covers, in said assembled state, said preformed area of said two front covers is through holes that are eccentric to one another and said retention means are retained between said two front covers. This allows improved passage of the tap while assembling the device, with improved retention once it is placed in the preformed area.

[0018] In another embodiment, the device the panel comprises at least a second transverse folding line extending parallel to said first transverse folding line such that at least one front cover is formed in said panel. This simplifies the manufacture of the outer container and furthermore improves its rigidity once again.

[0019] Furthermore, in another embodiment in which the device has a front and rear lip, the panel comprises at least a second transverse folding line extending parallel to said first transverse folding line such that at least one rear cover is formed in said panel.

[0020] The preferred shapes of the device are when said closed polygonal cross-section is a cross-section selected from a triangular, quadrangular, trapezoidal, hexagonal, or octagonal cross-section. These shapes are particularly suitable for storage and stacking.

[0021] In a particularly preferred manner, said panel made of sheet material is made of a material such as cardboard, plastic, corrugated cardboard, or foam board. These materials are cost-effective and can be easily handled.

[0022] Another problem considered in the invention is the ability to customize the device in a simple manner. To that end, the device comprises a plurality of front covers and one front cover of said plurality of front covers is a separate part of said panel. Additionally, in another improved embodiment the device comprises a plurality of rear covers and one rear cover of said plurality of front covers is a separate part of said panel. In that sense, a standard container can be manufactured, and separate covers can be used for customization. Furthermore, the separate covers also allow using materials that are different from the materials of the outer container. For example, in the case of quality wine, the outer container can be made of cardboard, whereas the customizable covers can be made of wood and have customized inscriptions.

[0023] In a particularly preferred manner, said front and rear covers of said plurality of front and rear covers which are separate parts of said panel are made of sheet material such as wood, cardboard, plastic, corrugated cardboard, or foam board.

[0024] In another alternative embodiment, the outer container can be made through panels having small dimensions. In this type of device, the panel made of sheet material is therefore formed by a plurality of subpanels connected to one another by means of linking connectors.

[0025] In its broader concept, the tap of the device can be concealed, such that the user will have to extract it to enable dispensing the liquid. Nevertheless, it is particularly desirable for the tap to be pre-assembled. This provides the device with a better appearance and is much more practical for the user. The risk of the tap being preassembled consists of it becoming damaged. Therefore, in a particularly preferred embodiment when the tap is assembled the lip of the device has a depth of at least 3 cm. The protection of the tap by the lip itself is thereby assured.

[0026] Transporting devices of this type is an inconvenience due to their large volume. To that end, larger formats usually have a handle. One of the problems that may be caused by the handle is that it may damage the inner bag with its retention means. To solve this problem, in another embodiment the device comprises a handle with second retention means, in that a side face of said

container comprises two third holes, one of said first flaps has a length greater than the maximum distance between the respective first transverse folding line and one of said two third holes, and in said assembled state said retention means are inserted through said third holes and retained between the side face and said first flap of a greater length. In that sense, the handle is protected between the side face and the inner flap, preventing the handle from damaging the bag.

[0027] In another preferred embodiment having the objective of maximizing convenience in use, said preformed area is a through hole. In that sense, the tap will come pre-assembled.

[0028] Another object of the invention relates to a tool for manufacturing a device according to the invention, characterized in that it comprises at least two support surfaces each of them suitable for receiving one of the side faces of said prism, where said support surfaces are attached to one another forming the same angle as that formed by said side faces when said device is in the assembled state. Preferably, one of said support surfaces comprises a flange at each of its longitudinal edges extending towards the inside of said support surface, where the distance between said flange and said support surface is greater than the thickness of said panel made of sheet material, and the distance between the free ends of said flanges is greater than the length of said longitudinal folding lines. As will be seen in the examples, if the device is an octagonal prism, then the flanges are preferably present on two of said support surfaces.

[0029] In fact, in specific cases the manufacturer of the panel made of sheet material will not be responsible for performing the complete assembly of the entire device, including the bag. In these cases, the panel must be transported from the facilities of the panel manufacturer to the facilities of the entity responsible for the complete assembly of the entire device.

[0030] In a preferred alternative, the panel is transported before attaching the two longitudinal ends of the panel by means of applying an adhesive. In that case, it is advantageous to have a tool such as the one indicated above in the facilities of the entity responsible for the complete assembly of the entire device, facilitating the assembly thereof. This tool allows the operator to have both hands free (without having to support the container), making it easier for them to perform the tasks of folding, positioning the bag, and applying a final adhesive. This alternative is particularly interesting in the case of devices having a triangular prism shape, because the triangular prism takes up a large volume once an adhesive is applied, increasing the cost of transport. However, it can also be advantageous to use these tools according to the invention if the prism has other cross-sections, such as quadrangular or octagonal, for example. Preferably, there are provided two tools arranged on a support suitable for rotating according to a vertical axis, which facilitates the assembly of the entire device between two operators.

[0031] In another preferred alternative, the panel is transported after attaching the two ends of the panel by means of applying an adhesive. This is particularly interesting when the panel, despite having the two attached ends, can be folded and stay flat, as in the case of quadrangular or octagonal prisms, for example. In this alternative, it is advantageous for the device to include (on a side face, preferably on the side face which is closer to the preformed area housing the tap) two holding openings. The function of these holding openings is to allow the passage of the fingers of a holding clip which is suitable for fixing the bag with respect to the container during the assembly operation. Accordingly, another tool according to the invention is a tool comprising a holding clip arranged on a support, where the clip is located at a height which coincides with the height at which the holding openings are located when the container is supported on the support.

[0032] Likewise, the invention also includes other features of detail illustrated in the detailed description of an embodiment of the invention and in the accompanying figures.

Brief description of the drawings

[0033] Further advantages and features of the invention will become apparent from the following description, in which, without any limiting character, preferred embodiments of the invention are disclosed, with reference to the accompanying drawings in which:

Figure 1 shows a schematic front perspective view of a first embodiment of the device according to the invention in the assembled state.

Figure 2 shows a schematic rear perspective view of the device of Figure 1 in the assembled state.

Figure 3 shows a top plan view of the panel forming the outer container of the device of Figure 1, as well as a separate front cover and a separate rear cover.

Figure 4 shows a schematic top perspective view of a first step of assembling the outer container of the device of Figure 1.

Figure 5 shows a schematic top perspective view of a second step of assembling the outer container of the device of Figure 1.

Figure 6 shows a schematic view of the container and the bag of the device of Figure 1, in the moment prior to the introduction of the bag in the container.

Figure 7 shows a schematic front perspective view of the device of Figure 1 in the assembled state.

Figure 8 shows a top plan view of the panel of a

second embodiment of the device according to the invention, with two separate front covers, and three rear covers, one of the which is a separate cover

Figure 9 shows a schematic top perspective view of a first step of assembling the outer container of the device of Figure 1, in the moment in which the front cover is coupled, not the bag.

Figure 10 shows a schematic top perspective view of a second step of assembling the outer container of the device of Figure 1 with the bag already introduced therein.

Figure 11 shows a schematic top perspective view of a third step of assembling the device of Figure 8.

Figure 12 shows a schematic bottom perspective view of a fourth step of assembling the device of Figure 8.

Figure 13 shows a top plan view of the panel of a third embodiment of the device according to the invention, with separate front and rear covers.

Figure 14 shows a schematic top perspective view of a first step of assembling the outer container of the device of Figure 13.

Figure 15 shows a schematic front perspective view of a second step of assembling the outer container of the device of Figure 13.

Figure 16 shows a schematic side perspective view of the device of Figure 13 in the assembled state.

Figure 17 shows a top plan view of the panel of a fourth embodiment of the device according to the invention, with three front covers and three rear covers, where one front cover and one rear cover of the container are separate covers.

Figure 18 shows a schematic top perspective view of a first step of assembling the outer container of the device of Figure 17.

Figure 19 shows a schematic front perspective view of a second step of assembling the outer container of the device of Figure 17.

Figure 20 shows a schematic top perspective view of a third step of assembling the outer container of the device of Figure 17.

Figure 21 shows a schematic side perspective view of the device of Figure 17 before assembling the handle.

Figure 22 shows a schematic side perspective view of the device of Figure 17 in the assembled state.

Figure 23 shows a schematic front perspective view of a fifth embodiment of the device according to the invention in the assembled state.

Figure 24 shows a schematic front perspective view of a sixth embodiment of the device according to the invention in the assembled state.

Figure 25 shows a schematic side perspective view of a first embodiment of a tool according to the invention.

Figure 26 shows a schematic side perspective view of the tool of Figure 25 with a device according to the invention partially assembled.

Figure 27 shows a schematic side perspective view of a second embodiment of a tool according to the invention.

Figure 28 shows a schematic side perspective view of the tool of Figure 27 with a device according to the invention partially assembled.

Figure 29 shows a schematic side perspective view of a third embodiment of a tool according to the invention.

Figure 30 shows a schematic side perspective view of the tool of Figure 29 with a device according to the invention partially assembled.

Figure 31 shows a schematic top perspective view of a seventh embodiment of the device according to the invention.

Figure 32 shows a schematic top perspective view of an eighth embodiment of the device according to the invention in the assembled state.

Detailed description of embodiments of the invention

[0034] Figures 1 to 7 show a first embodiment of the device 1 for storing, transporting, and dispensing a liquid. The liquid is preferably an edible liquid such as wine, oil, water, beer, juice, beverages, or similar edible liquids.

[0035] The device 1 has two main elements which are: an outer container 2 and, inside said outer container, an inner bag 12 comprising a tap 14 for dispensing the liquid.

[0036] In this embodiment, the outer container 2 is formed by a panel 4 made of sheet material such as cardboard, plastic, corrugated cardboard, or foam board.

[0037] It can be seen in Figure 3 that the panel 4 has eight longitudinal folding lines 6 extending in the longitudinal direction L along the entire length of the panel 4. In

the panel 4, these longitudinal folding lines 6 separate the side faces 30 of the container 2. The panel 4 also has, at each of its ends, two first transverse folding lines 8 extending in a transverse direction T to form in the panel 4 first flaps 10 virtually throughout the entire width of the panel 4. It must be mentioned that the transverse folding lines 8 can be two in number if the sheet material is very thick to facilitate folding the panel 4.

[0038] Furthermore, a flap 10 projects from each of the ends of each of the side faces 30 of the container 2, except for the leftmost side face 30 of Figure 3, which is a face that is superposed on the rightmost side face 30 of the panel 4 to assemble the container 2.

[0039] It can be seen in Figure 4 that to assemble the outer container 2, the panel 4 must be folded over itself, along the longitudinal folding lines 6. In that sense, in a first step of assembly, when superposing the leftmost side face 30 on the rightmost side face 30, in the assembled state of said device 1, a hollow prism having a closed octagonal cross-section is formed. To close the panel 4 and form this polygon, the leftmost side face 30 of the panel 4 has adhesive lines 44 which allow attaching the two longitudinal ends of the panel 4.

[0040] The outer container 2 of this embodiment furthermore has three front covers 18 and three rear covers 20 which are made of sheet material and also have an octagonal shape when seen in the plan view of Figure 3. Their shape is therefore complementary to the inner perimeter of the prism formed from the panel 4. Each of the front covers 18 and rear covers 20 formed from the panel 4 have two assembly flanges 22 projecting from the sides of the front covers 18 and rear covers 20, the usefulness of which will be explained below. In turn, the front and rear covers 18, 20 forming a single part have three flanges uniformly distributed along the contour thereof.

[0041] In a second step of assembly and to complete the device 1 starting from the state of Figure 4, the first flaps 10 are folded along the first transverse folding lines 8 towards the inside of the prism formed by the outer container 2. In the assembled state, the first flaps 10 are therefore arranged inside the prism, parallel to its inner face, forming a front end and rear end of the container, respectively, which can be seen in Figures 1 and 2.

[0042] To enable assembling the container 2 completely without requiring additional external elements, three of the flaps 10 of the container 2 have first holes 26 which are spaced apart from the first transverse folding lines 8 and which are complementary to the flanges 22 of the front and rear covers 18, 20. Therefore, starting from Figure 5, the front face of the container 2 is assembled. To that end, the right and left front covers 18 are folded along the corresponding first transverse folding line 8 until they are arranged in a direction perpendicular to the longitudinal direction L of the container 2. The holes 26 are configured so that, in the following step of assembly, the flanges 22 of the front covers 18 and rear covers 20 fit in these first holes 26, and the covers are retained without requiring more additional coupling and retention elements.

[0043] This fitting causes the outermost front cover 18 to be recessed within the prism with respect to a plane P1 passing through the respective front edge of said container 2. As can be particularly seen in Figures 1 and 2, this causes the formation of a reinforcing lip 28 having a depth H1 between the plane P1 and the front face of the outermost front cover 18 or the formation of a reinforcing lip 28 having a depth H2 between the plane P2 and the front face of the rear cover 20. Thanks to that, the outer container 2 therefore has a significantly improved consistency with respect to devices of the state of the art.

[0044] The inner bag 12 must be placed before closing the container 2. As can be seen in Figure 6, the bag 12 filled with liquid such as wine, for example, is inserted into the outer container 2 through the rear side thereof, that has yet to be assembled. The inner bag 12 has a tap 14 for dispensing the liquid. Furthermore, the tap 14 has retention means 16. In this embodiment in which the front cover 18 has a preformed area 24, in the assembled state of the device, the tap 14 is housed in the preformed area 24 of the front cover 18 through said retention means 16.

[0045] The fixing of the tap 14 is achieved because the invention comprises front covers 18 in which the preformed area 24 are through holes. When the three front covers 18 of the container 2 are superposed like in Figure 7, the holes are eccentric to one another. In that sense, the retention means 16 are retained between the three front covers 18. Furthermore, the front cover 18 forming a single part has an oval-shaped hole to facilitate assembling the tap 14.

[0046] This configuration of a container 2 with a lip 28 provides great stability to the device 1 and allows the tap to be placed in a position of use for distribution or storage.

[0047] Furthermore, for the purpose of protecting the tap 14, as can be seen in Figure 1, the first holes 26 are spaced apart from the first transverse folding lines 8 by a distance D1. Furthermore, the first flaps 10 have a length L1 such that, in the assembled state, the front end of the tap 14 is, at most, flush with said plane P1. More particularly, it is very advantageous for the lip 28 to have a depth H1 of at least 3 cm, which provides the best protection to the tap 14 during transport and storage.

[0048] In this embodiment, the tap 14 is already preassembled, such that the device 1 is marketed with the tap 14 in view. The fact that the tap 14 is already put in place means that the device 1 is far more convenient to use compared to the tap of known devices 1.

[0049] This embodiment also seeks to obtain greater convenience in use. To that end, the side face 30 of the container 2 and the first flap 10 corresponding with the same side face 30 have a perforation 32 extending to both sides of the first transverse folding line 8 separating them. Therefore, in the assembled state, the perforation 32 is facing the outlet 34 of the tap 14. To start using the device 1, the user must break the lip 28 along the perforation 32 and free the outlet 34 of the tap 14 so that the

lip 28 does not hinder the dispensing of the liquid and the liquid does not splash out either.

[0050] It must also be mentioned that in this embodiment the panel 4 comprises two second transverse folding lines 36 extending parallel to the first transverse folding line 8 such that two front covers 18 and two rear covers 20 are formed in the panel 4 itself, which facilitates manufacture and simplifies assembly.

[0051] Moreover, the fact that a front cover 18 of the plurality of front covers 18, as well as a rear cover 20 of the plurality of rear covers 20, are a separate part of the panel 4 is also extremely noteworthy in the device of Figures 1 to 7. The device 1 can therefore be customized in a very simple manner. The independent front and rear covers 18, 20 can be made of different materials. For example, the container 2 being made of cardboard, while the separate front and rear covers 18, 20 being made of wood, is particularly preferred to improve product appearance. This allows improving the stability of the container 2, but also improving at the same time the perception of product quality. This makes devices of this type very interesting for sectors such as wine or spirits because this container 2 is in the form of a barrel.

[0052] Alternatively, the individual front and rear covers 18, 20 are made of sheet material such as cardboard, plastic, corrugated cardboard, or foam board.

[0053] Finally, the invention also seeks to prevent the inner bag 12 from accidentally breaking with the handle of the device 1. To that end, the device 1 comprises a handle 38 with second retention means not shown in detail. The panel 4 also has a side face 30 of the container 2 having two third holes 40. In turn, the first flap 10 which is arranged in the center of the panel 4 of Figure 3 has a length greater than the maximum distance L2 between the respective first transverse fold line 8 and the third hole 40 spaced farthest apart from the first folding line from which the flap protecting the bag 12 from the retention means of the handle 38 projects. In the assembled state, the retention means are inserted through said third holes 40 and retained between the side face 30 and said first flap 10 of a greater length. The retention means can be, for example, a transverse rib projecting on both sides of the ends of the handle 38 forming a T shape. Therefore, once the retention means are inserted through the third holes 40, the T shape causes the handle 38 to be retained by the inner portion in the side wall 30 of the container 2, whereas the protective flap prevents the T shape from contacting with the inner bag 12.

[0054] Other embodiments of the device for storing, transporting, and dispensing a liquid according to the invention which share a large part of the features described in the preceding paragraphs are shown below. Accordingly, only the different elements will be described below, and reference will be made to the description of the first embodiment for common elements.

[0055] The embodiment of Figures 8 to 12 differs from the preceding embodiment only in terms of the front portion of the container 2. The container 2 also has an octagonal cross-section.

[0056] In this case, the container 2 has two front covers 18 instead of three. A star-shaped front cover 18 in which the preformed area 24 is a through hole in the shape of gear wheel, that is, a plurality of retention legs 46 is envisaged to enable cooperating with the retention means of the tap 14.

[0057] The other front cover 18 is identical to the cover described in the preceding embodiment.

[0058] Moreover, the second transverse folding lines 36 form second flaps 48.

[0059] The front portion of this container 2 is therefore assembled in the following manner: as indicated above, the first flaps 10 are folded inwardly until they are parallel to the side faces 30. In turn, the second flaps 48 are folded with respect to the first flaps 10 along the second transverse folding lines 36 forming a 90° angle.

[0060] In parallel, as can be seen in Figure 9, the tap 14 is passed through the preformed area 24 of the first front cover 18 until the retention means 16 are fitted in the retention legs 46.

[0061] The bag 12 filled with liquid is inserted into the container until the first front cover 18 abuts with the second flaps 48.

[0062] Finally, the external front cover 18 is placed on the side of the lip 28, as shown in Figure 11. It must be mentioned that in Figure 11 the front cover 18 is already put in place, such that the cover depicted with the arrow is for illustration purposes only.

[0063] Finally, the container 2 is closed at the rear portion, as shown in Figure 12.

[0064] The embodiment of Figures 13 to 16 differs from the preceding embodiments only in terms of the prism formed by the outer container 2 having an approximately triangular or trapezoidal cross-section.

[0065] Due to its configuration with two front and rear covers 18, 20 formed in the panel 4, and a front cover 18 and a rear cover 20 formed as individual parts, the assembly is identical to that already described for the first embodiment.

[0066] In the embodiment of Figure 24, the first flap 10 which in the assembled state is facing the outlet 34 of the tap 14 is shorter to leave the outlet 34 of said tap 14 free.

[0067] The embodiment of Figures 17 to 22 consists of a parallelepiped outer container 2, i.e., the prism that is formed has a square cross-section.

[0068] The solution proposed in this case is a combination of the first two embodiments. Specifically, the base is the first embodiment shown in Figures 1 to 7 with three front covers 18 and three rear covers 20.

[0069] Nevertheless, in this case, the preformed area 24 for assembling the tap 14 is not based on two eccentric through holes in the two front covers 18 formed in the panel 4, but rather, like in the second embodiment, the through holes are cogged wheel-shaped, with a plurality of retention legs 46 to enable cooperating with the retention means of the tap 14.

[0070] In turn, the external front cover 18 is identical to those already described with an oval-shaped through hole.

[0071] The embodiment of Figure 23 is based on the first embodiment already described in detail, but with a relevant difference.

[0072] In this case, in the front cover 18 the preformed area 24 consists of a conventional bag-in-box system known to one skilled in the art. In other words, the through hole is previously perforated, such that before serving the product for the first time the user must break the perforation of the preformed area, extract the tap 14, and place it in the housing formed as a result of the prior perforation.

[0073] The embodiment of Figure 24 differs from the embodiment of Figures 1 to 7 in that the lip 28 is not envisaged along the entire perimeter.

[0074] In particular, the first flap 10 which in the assembled state would be facing the outlet 34 of said tap 14 is shorter to leave said outlet 34 of said tap 14 free.

[0075] Otherwise, reference is made to description of the embodiment of Figures 1 to 7 in terms of assembly.

[0076] Finally, in another embodiment not shown in the drawings the panel 4 made of sheet material is formed by a plurality of subpanels connected to one another by means of linking connectors, such as adhesive fabric sheets.

[0077] As observed, in the various embodiments shown the devices for storing, transporting, and dispensing a liquid provide a clear advantage with respect to the devices of the state of the art because their rigidity is significantly increased and their portability, stacking, and storage improved as a result of the formation of the lip.

[0078] Figures 25 to 30 show three preferred embodiments of a tool according to the invention for devices with a triangular, quadrangular, and octagonal prism shape, respectively. The tool comprises 2, 3, or 5 support surfaces 51, respectively. Side faces 30 of the container 2 are supported on these support surfaces 51. The angle that the support surfaces 51 form with respect to one another is the same as the angle that the respective side faces 30 of the container 2 form with respect to one another. A flange 52 (or two flanges 52 in the case of Figures 29 and 30) retains the container 2 in the tool, such that the operator has both their hands free to perform assembly tasks, positioning the bag 12 inside the container 2 and applying an adhesive.

[0079] Figures 31 and 32 show two other preferred embodiments of the device according to the invention. They are based on the embodiments of Figures 20 and 11, respectively, but may be based on any other embodiment. The devices of Figures 31 and 32 have holding openings 53. Therefore, the preferred sequence for assembling these devices includes positioning the container 2 in a vertical position before closing the container 2, placing the bag 12 therein, holding the bag 12 by means of a holding clip through which the operator introduces the fingers through the holding openings 53, and closing the container 2. The operator therefore has both hands free to suitably close the container and does not have to worry about the bag 12 moving out of its correct position. This is important because, for the proper fixing of the tap 14, it must pass through the through holes provided in the front covers 18, so the bag 12 (together with the tap 14) must remain in the correct position until the tap 14 is fixed to the front covers 18.

Claims

1. A device (1) for storing, transporting, and dispensing a liquid, comprising:

[a] an outer container (2) formed by a panel (4) made of sheet material, comprising:

[i] a plurality of longitudinal folding lines (6) extending in the longitudinal direction (L) of said panel (4) and separating in said panel (4) side faces (30) of said container (2),
[ii] a plurality of first transverse folding lines (8) extending in a transverse direction (T) of said panel (4) to form first flaps (10) in said panel (4),
[ii] said panel (4) being foldable over itself along said longitudinal folding lines (6), such that in the assembled state of said device (1), a hollow prism having a closed polygonal cross-section is formed,

[b] an inner bag (12) comprising a tap (14) for dispensing said liquid, said bag (12) being arranged inside said outer container (2) in said assembled state of said device (1), and
[c] said tap (14) having retention means (16) so that, in said assembled state, said tap (14) is immobilized with respect to said container (2),

characterized in that

[d] it further comprises at least one front cover (18) made of sheet material and having a shape complementary to the inner contour of said prism, said at least one front cover (18) having at least two assembly flanges (22) projecting from the sides of said at least one front cover (18),
[e] **in that** in said assembled state, said first flaps (10) are folded along said first transverse folding lines (8) towards the inside of said outer container (2), such that in said assembled state, said first flaps (10) are arranged inside said prism, parallel to the inner face of said prism to form a front end of said container, and
[f] some of said flaps (10) have first holes (26) spaced apart from said first transverse folding

lines (8), said first holes (26) being configured such that, in said assembled state, said at least two flanges (22) of said at least one front cover (18) fit in said first holes (26), said at least one front cover (18) being recessed with respect to a plane (P1) passing through the respective front edge of said container (2) and a reinforcing lip (28) having a depth (H1) being formed between said plane (P1) and the front face of said front cover (18), and **in that**

[g] said at least one front cover (18) has a preformed area (24) and in said assembled state, said tap (14) is housed in said preformed area (24) of said at least one front cover (18) through said retention means (16).

2. The device (1) according to claim 1, **characterized in that** it further comprises

[a] at least one rear cover (20) made of sheet material and having a shape complementary to the inner contour of said prism, said at least one rear cover (20) having at least two assembly flanges (22) projecting from the sides of said at least one rear cover (20),

[b] **in that** in said assembled state, said first flaps (10) are folded along said first transverse folding lines (8) towards the inside of said outer container (2), such that in said assembled state, said first flaps (10) are arranged inside said prism, parallel to the inner face of said prism to form a rear end of said container, and

[c] some of said flaps (10) have first holes (26) spaced apart from said first transverse folding lines (8), said first holes (26) being configured such that, in said assembled state, said at least two flanges (22) of said at least one rear cover (20) fit in said first holes (26), said at least one rear cover (20) being recessed with respect to a plane (P2) passing through the respective rear edge of said container (2) and a reinforcing lip (28) having a depth (H2) being formed between said plane (P2) and the front face of said rear cover (20).

3. The device (1) according to claim 1 or 2, **characterized in that** said first holes (26) are spaced apart from said first transverse folding lines (8) by a distance (D1) and said first flaps (10) have a length (L1) such that, in said assembled state, the front end of said tap (14) is, at most, flush with said plane (P1).

4. The device (1) according to any one of claims 1 to 3, **characterized in that** a side face (30) of said container (2) and said first flap (10) corresponding with said side face (30) have a perforation (32) extending to both sides of the first transverse folding line (8) that separates them, said perforation (32) coinciding with the outlet (34) of said tap (14) in said assembled state to enable breaking said lip (28) along said perforation (32) and freeing said outlet (34) of said tap (14).

5. The device (1) according to any one of claims 1 to 3, **characterized in that** a first flap (10) which in said assembled state is facing the outlet (34) of said tap (14) is at least partially shorter to leave said outlet (34) of said tap (14) free.

6. The device (1) according to any one of claims 1 to 5, **characterized in that** it comprises two front covers (18), **in that**, in said assembled state, said preformed area (24) of said two front covers (18) are through holes that are eccentric to one another, and **in that** said retention means (16) are retained between said two front covers (18).

7. The device (1) according to any one of claims 1 to 6, **characterized in that** said panel (4) comprises at least a second transverse folding line (36) extending parallel to said first transverse folding line (8) such that at least one front cover (18) is formed in said panel (4).

8. The device (1) according to any one of claims 2 to 7, **characterized in that** said panel (4) comprises at least a second transverse folding line (36) extending parallel to said first transverse folding line (8) such that at least one rear cover (20) is formed in said panel (4).

9. The device (1) according to any one of claims 1 to 8, **characterized in that** it comprises a plurality of front covers (18) and **in that** a front cover (18) of said plurality of front covers (18) is a separate part of said panel (4), where said separate part is preferably made of sheet material such as wood, cardboard, plastic, corrugated cardboard, or foam board.

10. The device (1) according to any one of claims 2 to 9, **characterized in that** it comprises a plurality of rear covers (20) and **in that** a rear cover (20) of said plurality of rear covers (20) is a separate part of said panel (4), where said separate part is preferably made of sheet material such as wood, cardboard, plastic, corrugated cardboard, or foam board.

11. The device (1) according to any one of claims 1 to 10, **characterized in that** said panel (4) made of sheet material is formed by a plurality of subpanels connected to one another by means of linking connectors.

12. The device (1) according to any one of claims 1 to 11, **characterized in that** said lip (28) has a depth (H1) of at least 3 cm.

13. The device (1) according to any one of claims 1 to 12, **characterized in that** it comprises a handle (38) with second retention means, **in that** a side face (30) of said container (2) comprises two third holes (40), **in that** one of said first flaps (10) has a length greater than the maximum distance (L2) between the respective first transverse folding line (8) and one of said two third holes (40), and **in that** in said assembled state said retention means are inserted through said third holes (40) and retained between the side face (30) and said first flap (10) of a greater length.

14. A tool for manufacturing a device according to any one of claims 1 to 13, **characterized in that** it comprises at least two support surfaces (51) each of them suitable for receiving one of the side faces (30) of said prism, where said support surfaces (51) are attached to one another forming the same angle as that formed by said side faces (30) when said device is in the assembled state.

15. The tool according to claim 14, **characterized in that** one of said support surfaces (51) comprises a flange (52) at each of its longitudinal edges extending towards the inside of said support surface (51), where the distance between said flange (52) and said support surface (51) is greater than the thickness of said panel (4) made of sheet material, and the distance between the free ends of said flanges (52) is greater than the length of said longitudinal folding lines (6).

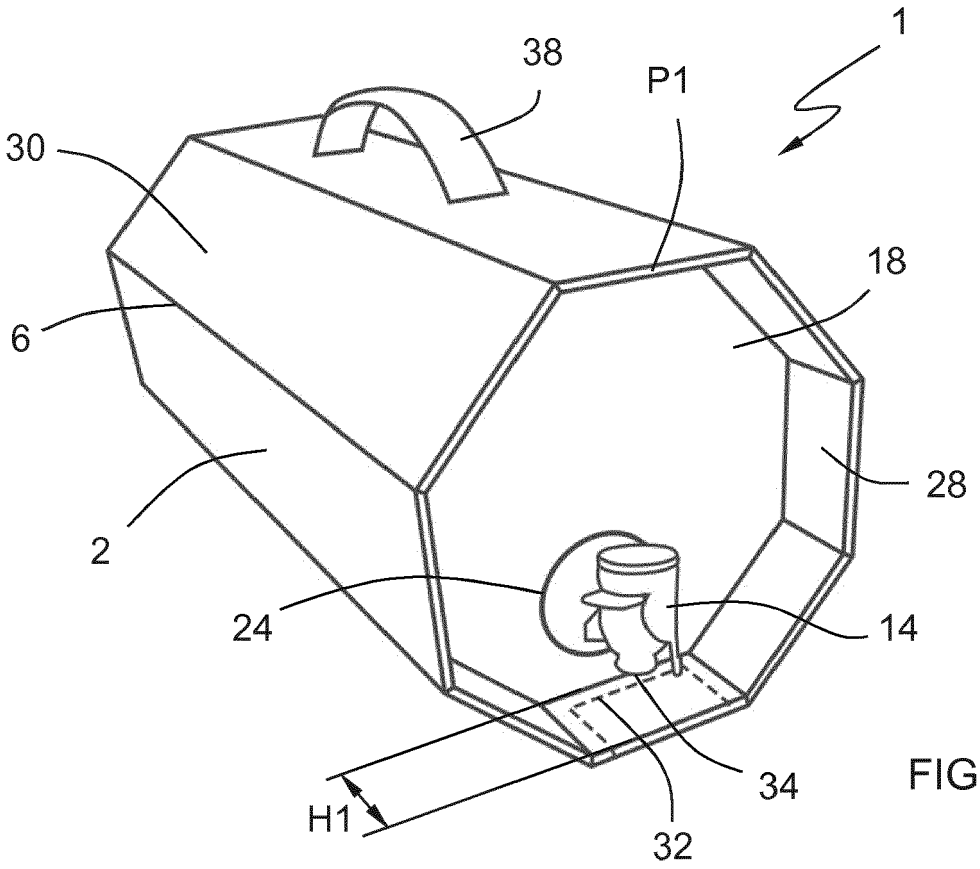

FIG. 1

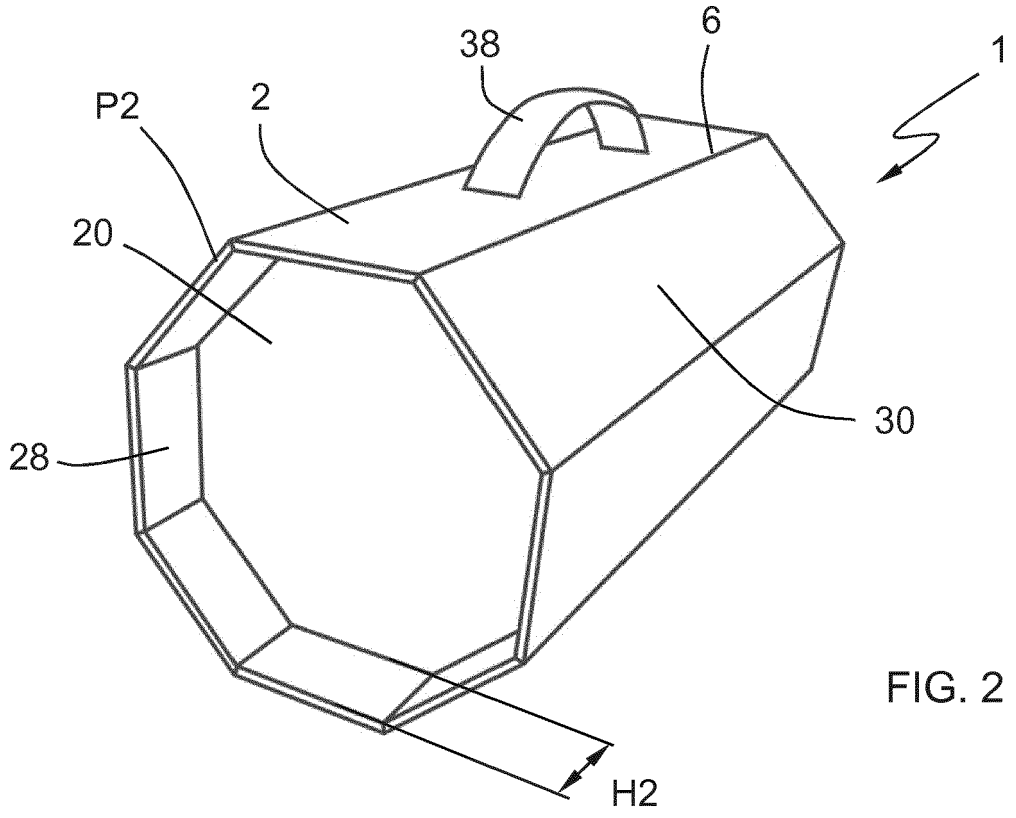

FIG. 2

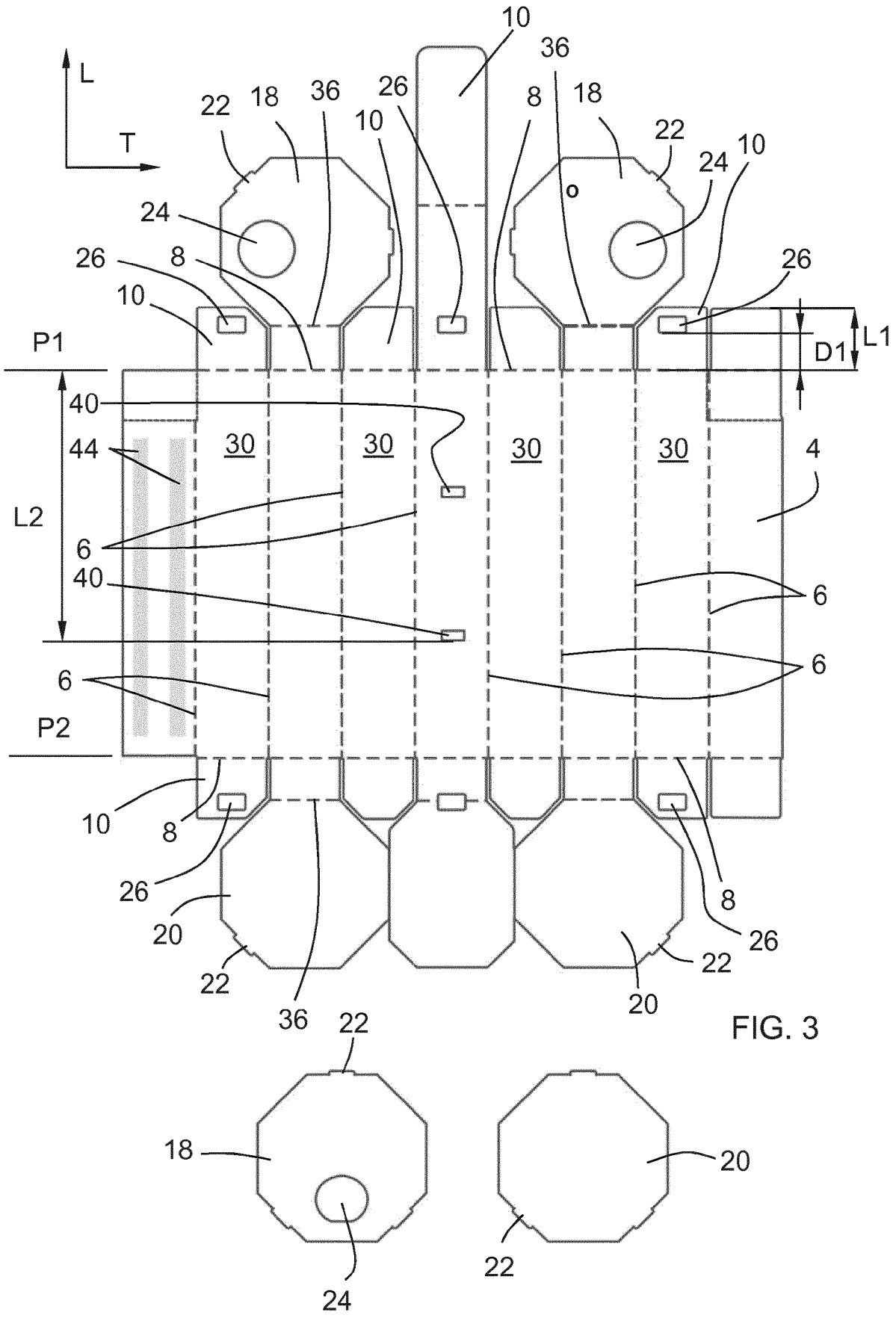
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FIG. 3

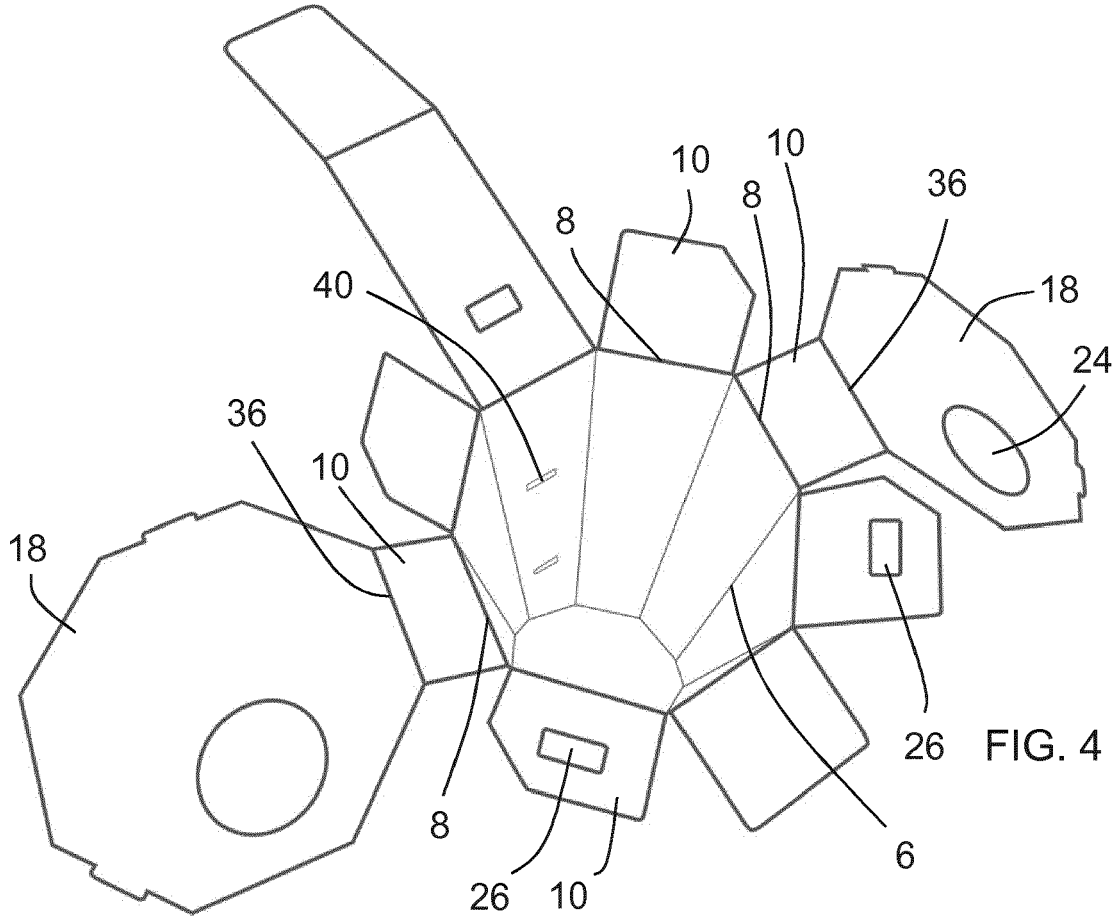


FIG. 4

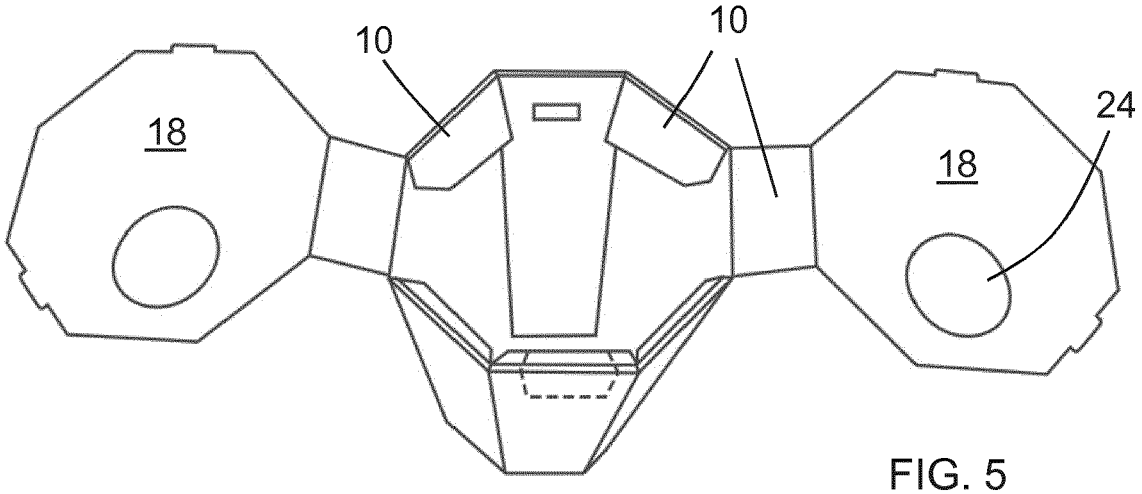


FIG. 5

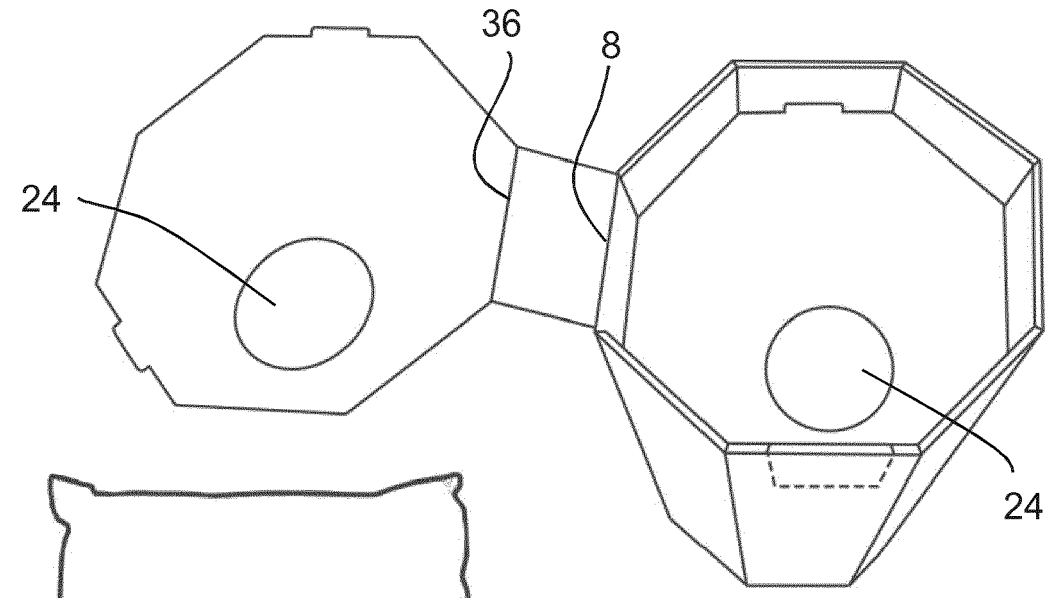
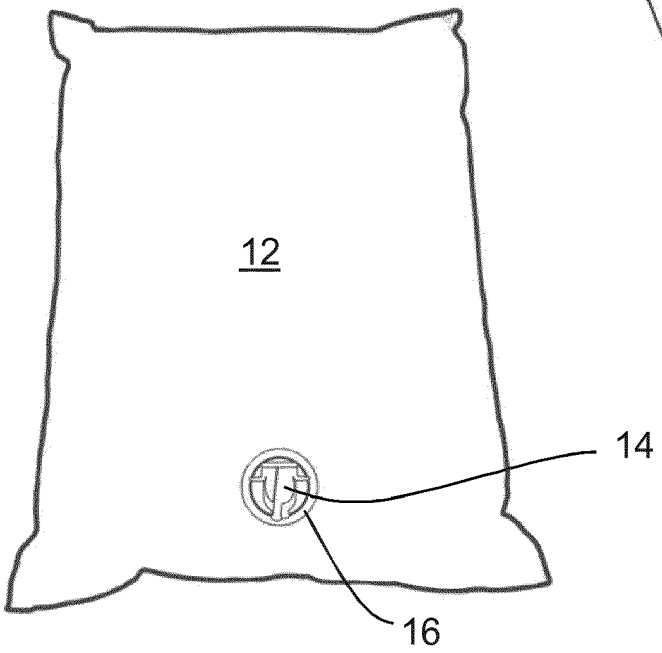


FIG. 6



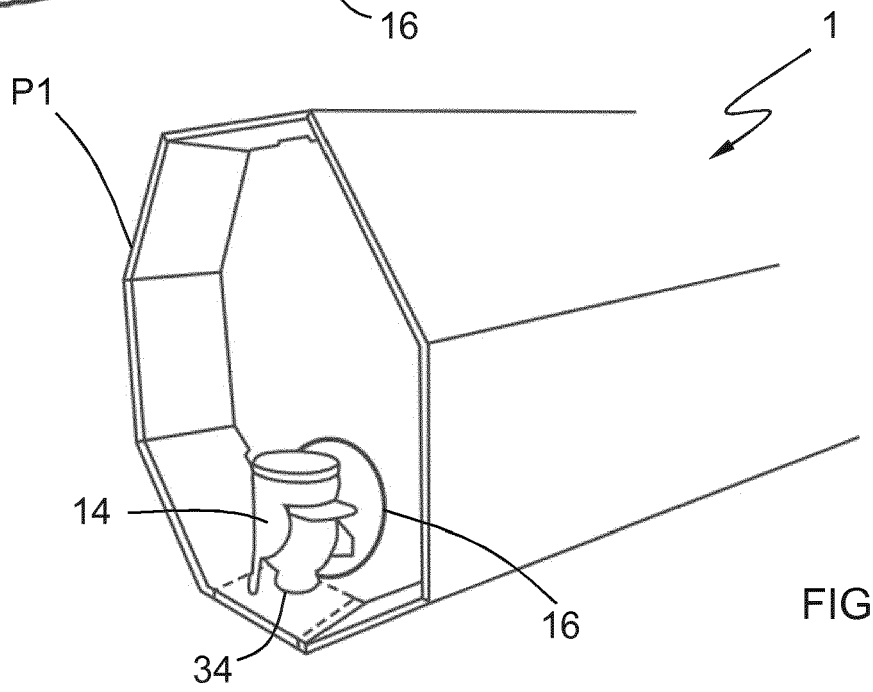


FIG. 7

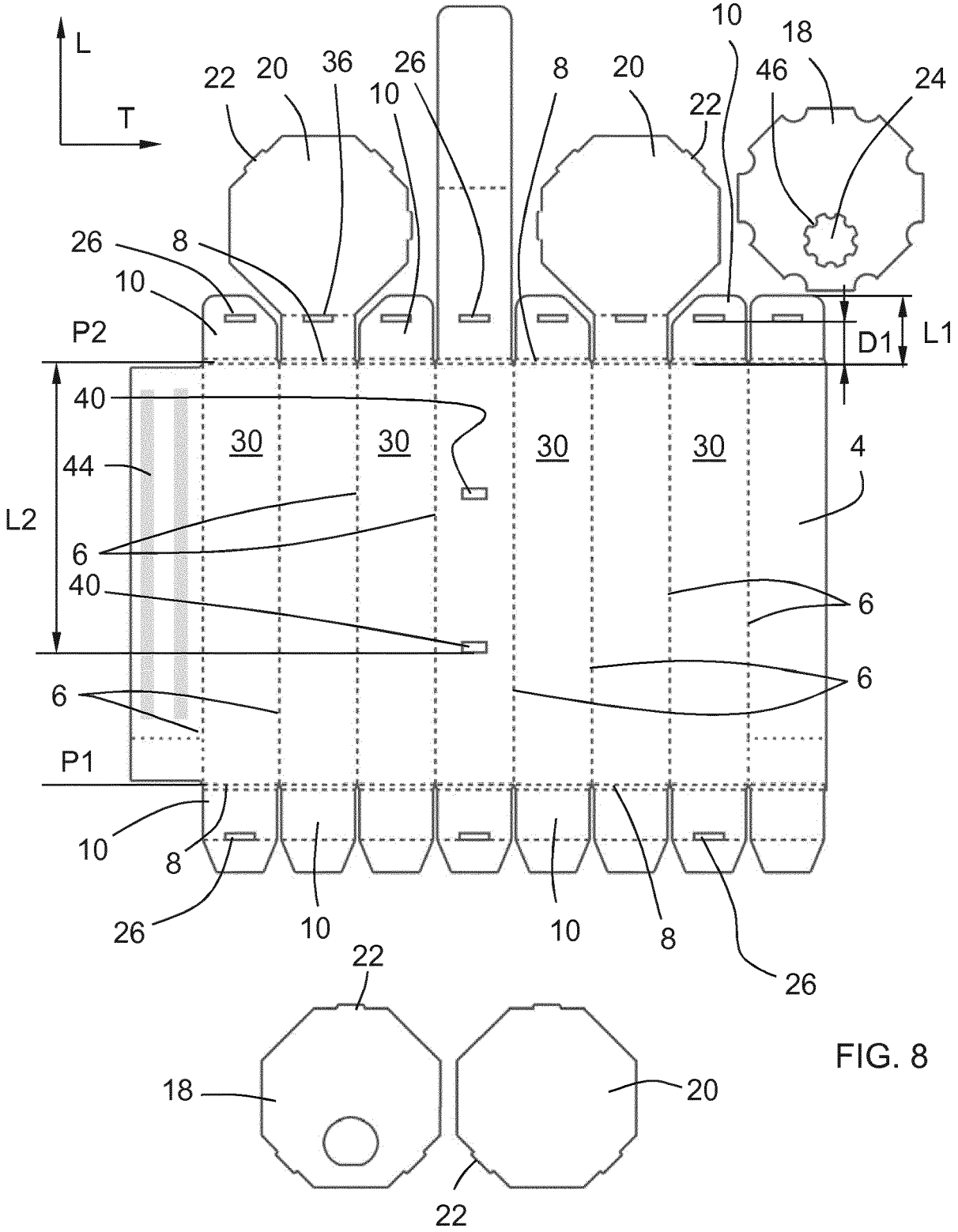

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FIG. 8

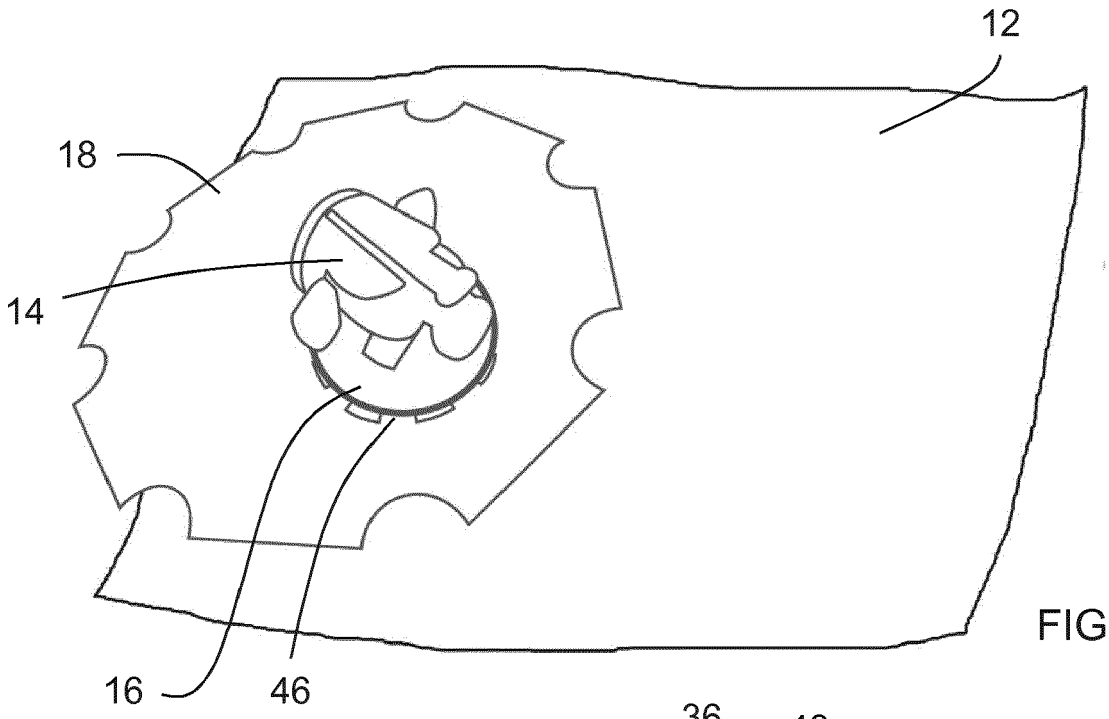

FIG. 9

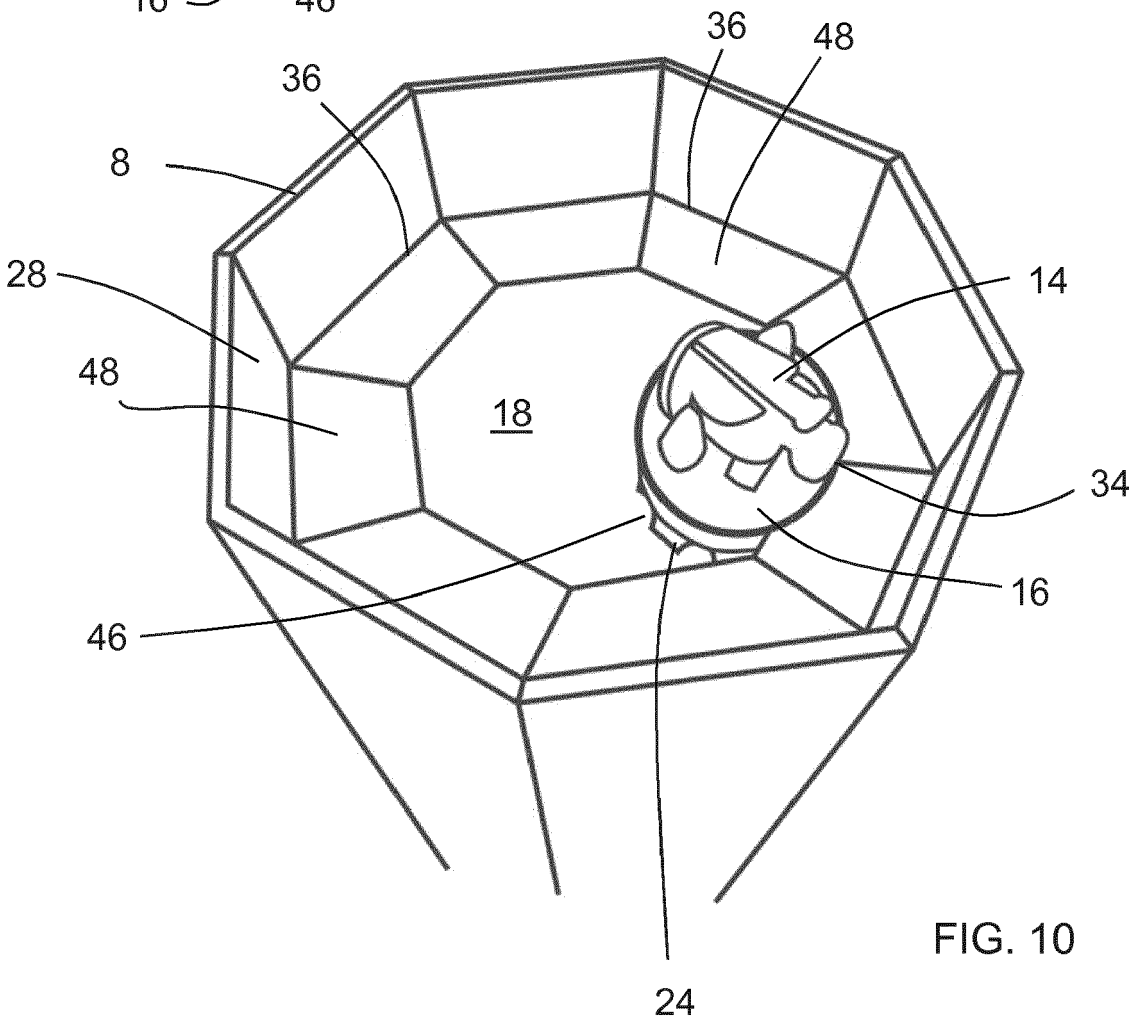

FIG. 10

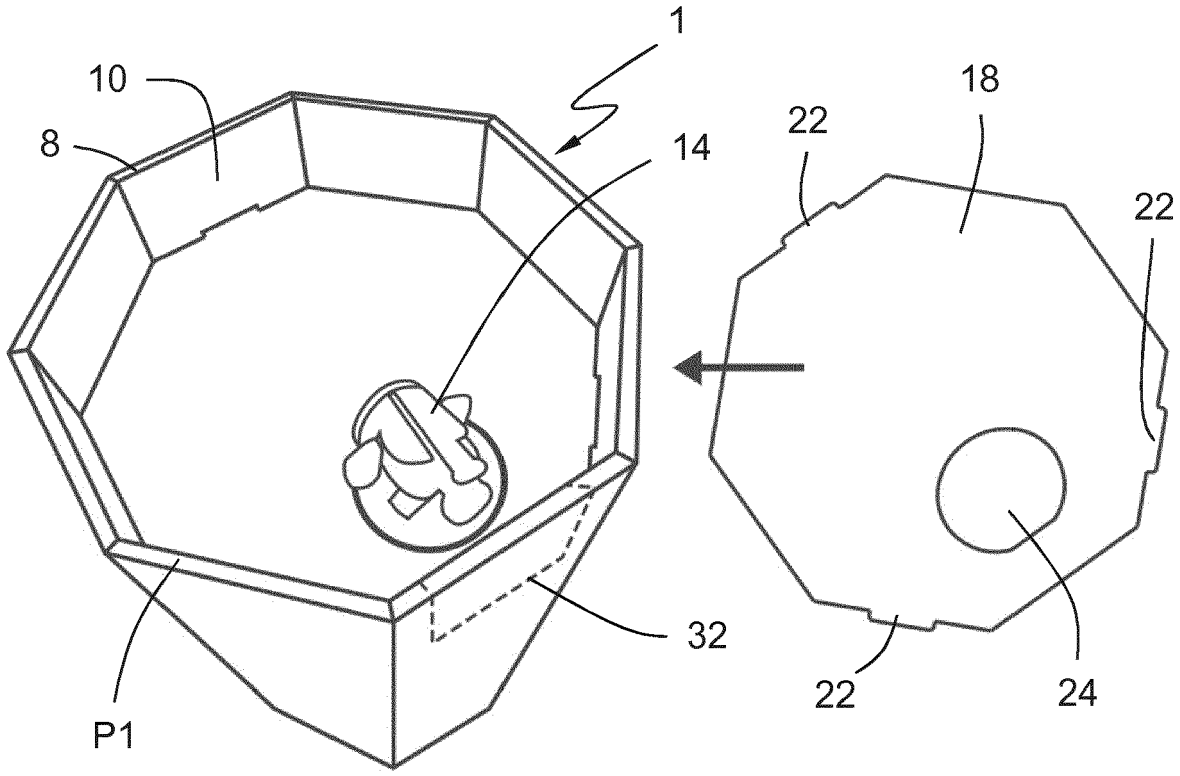

FIG. 11

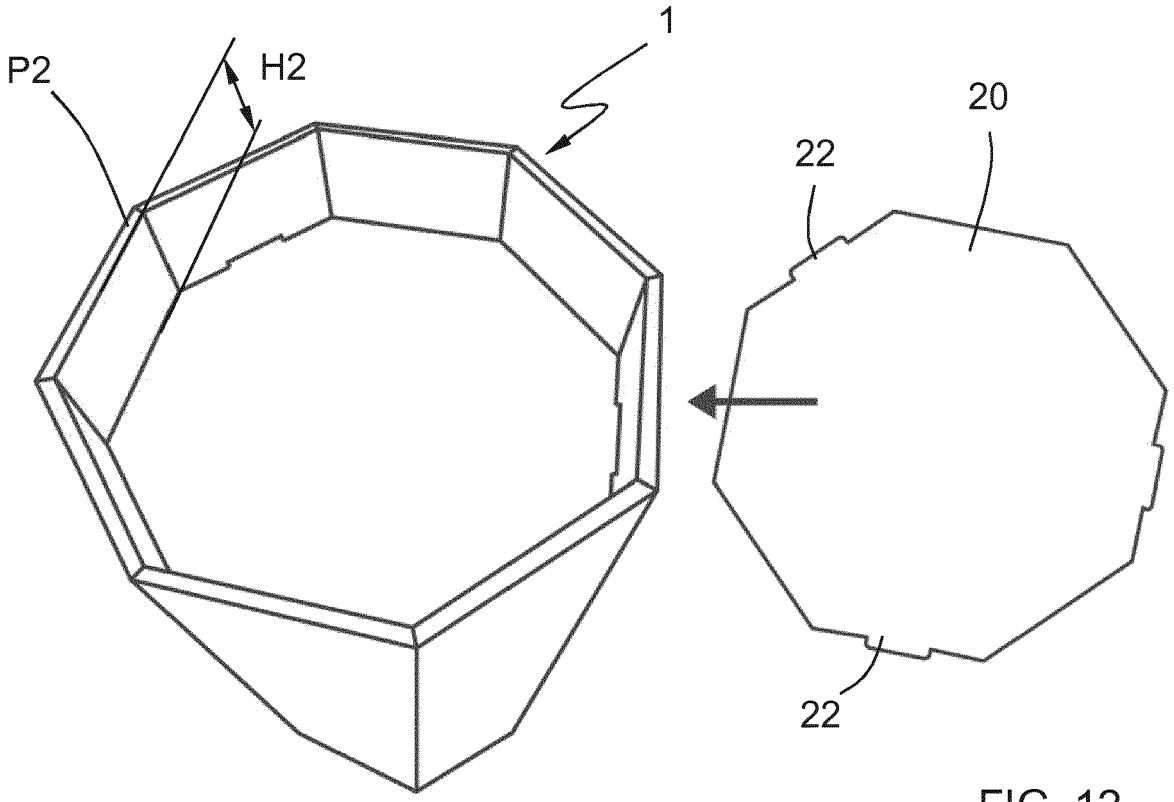

FIG. 12

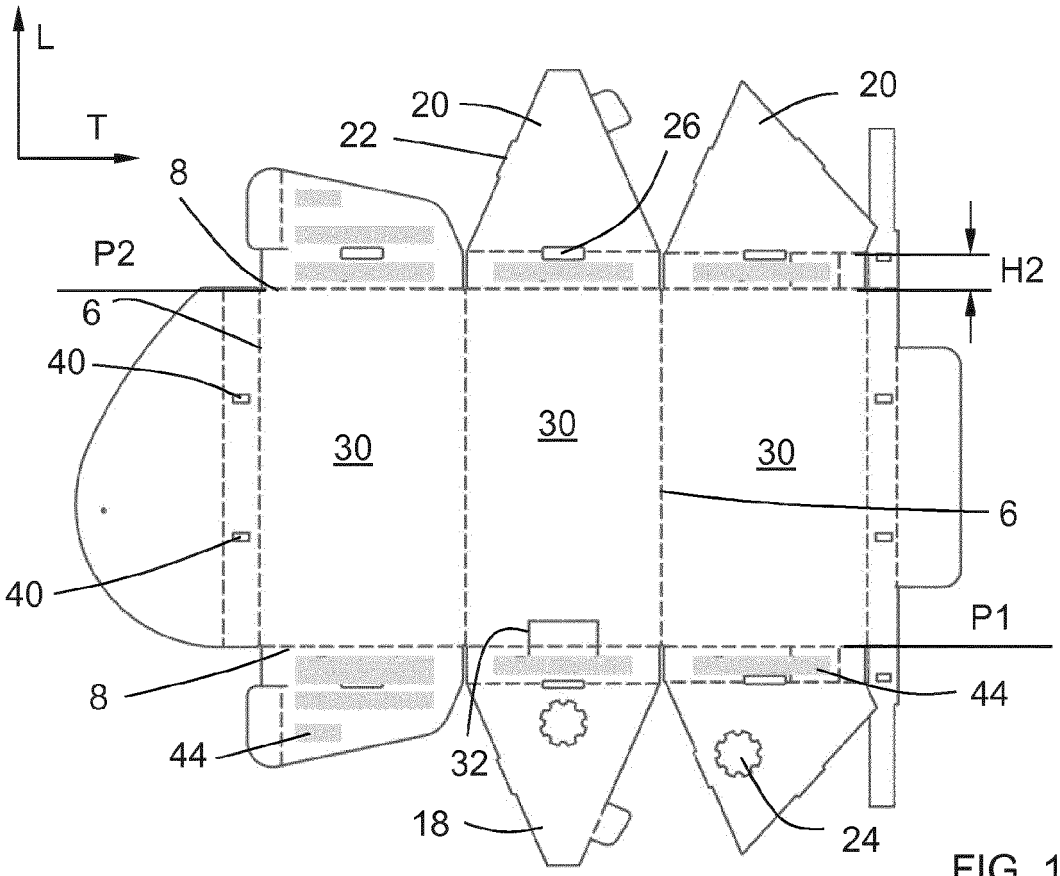
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FIG. 13

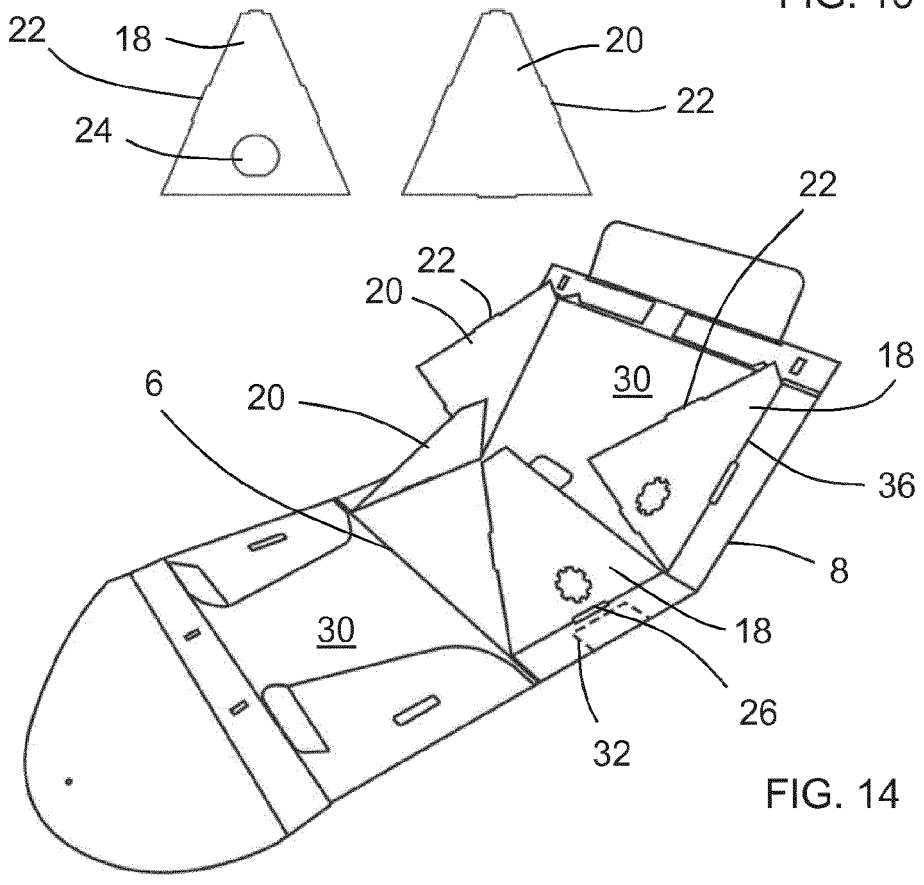
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FIG. 14

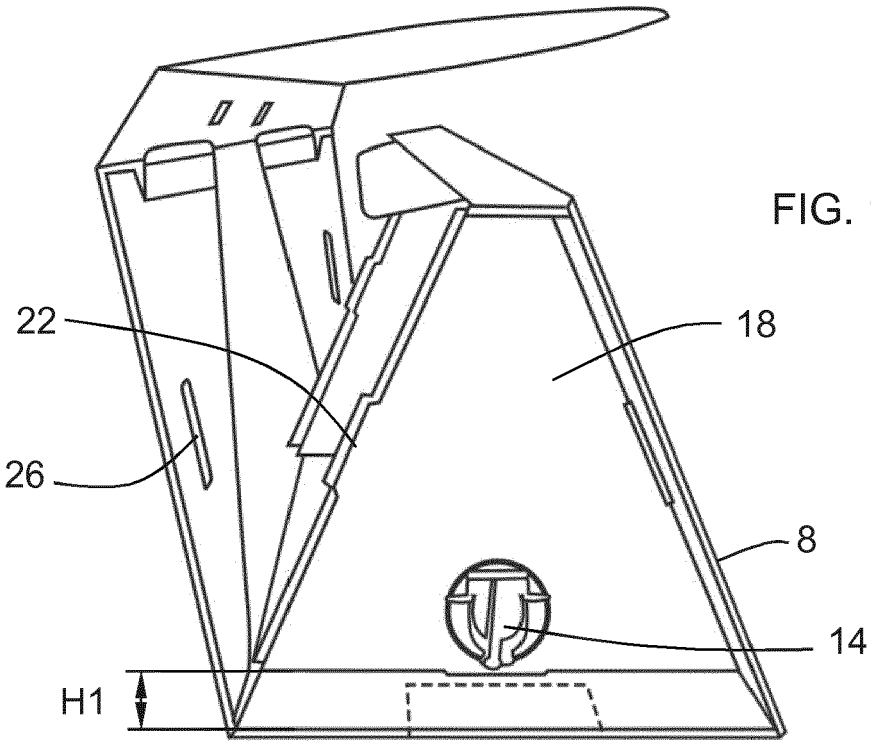

FIG. 15

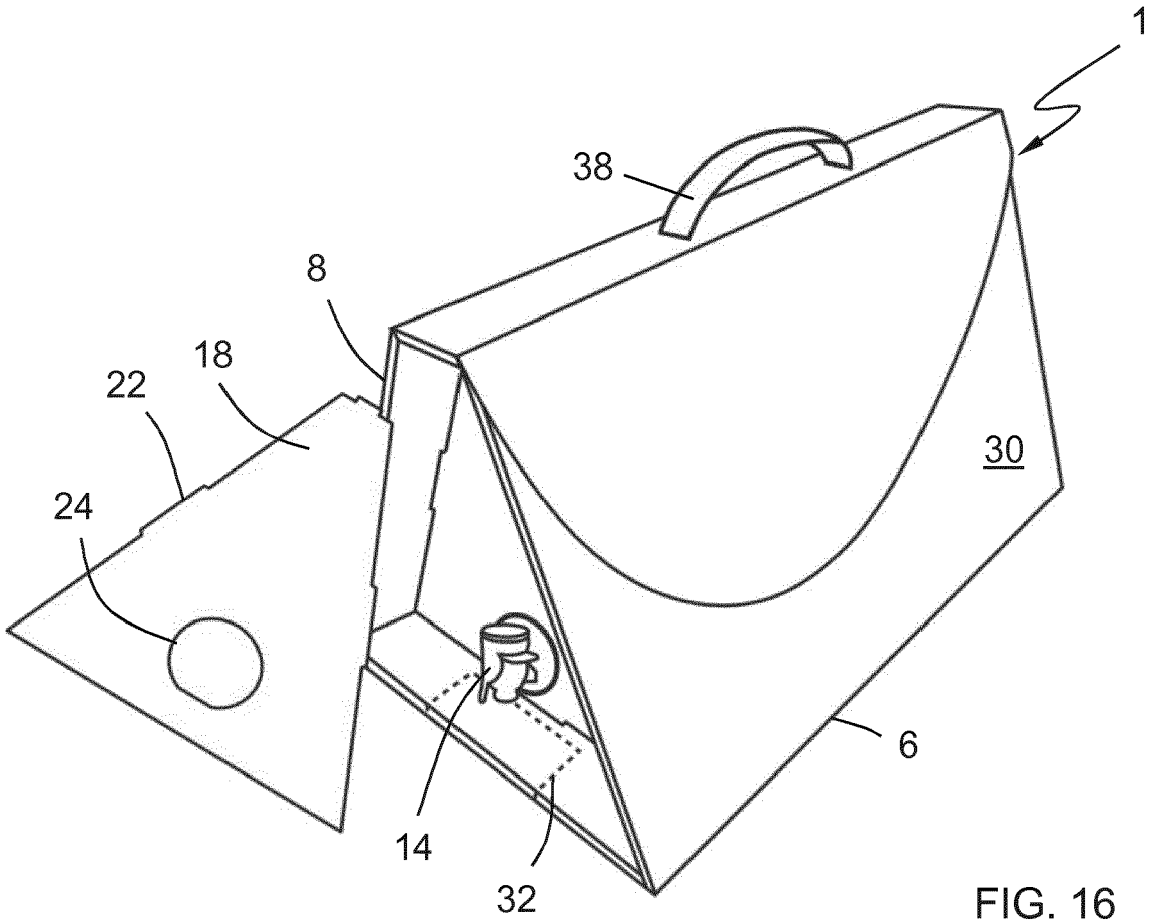

FIG. 16

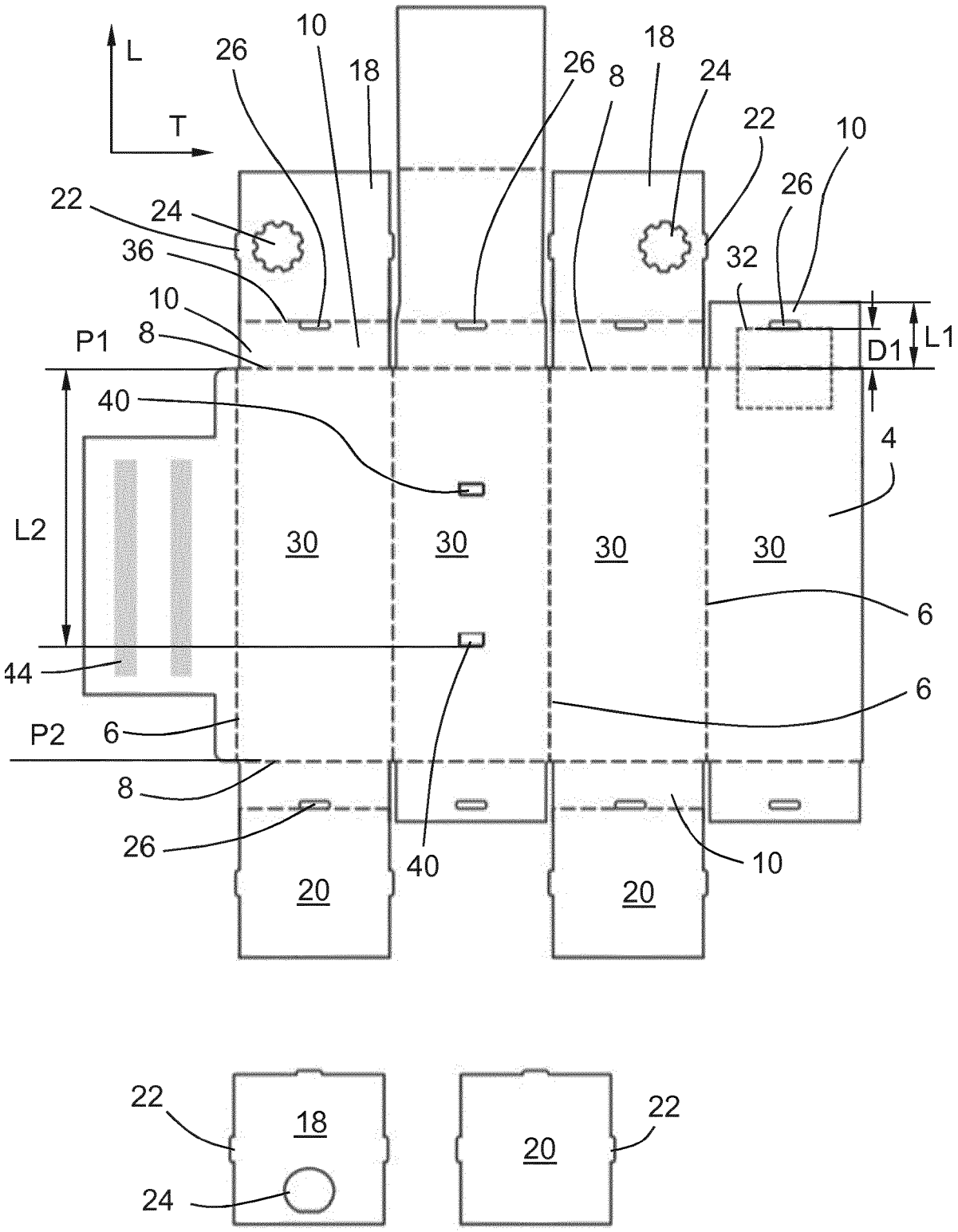
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FIG. 17

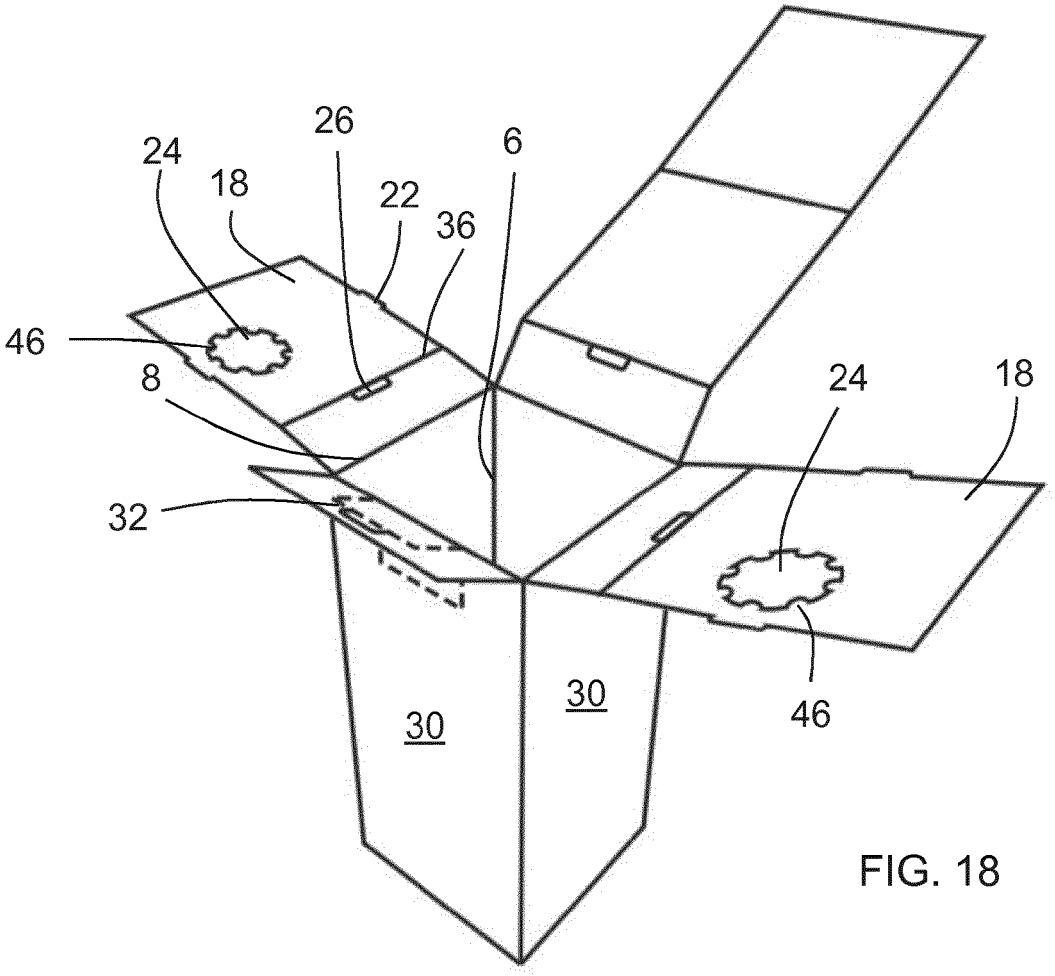

FIG. 18

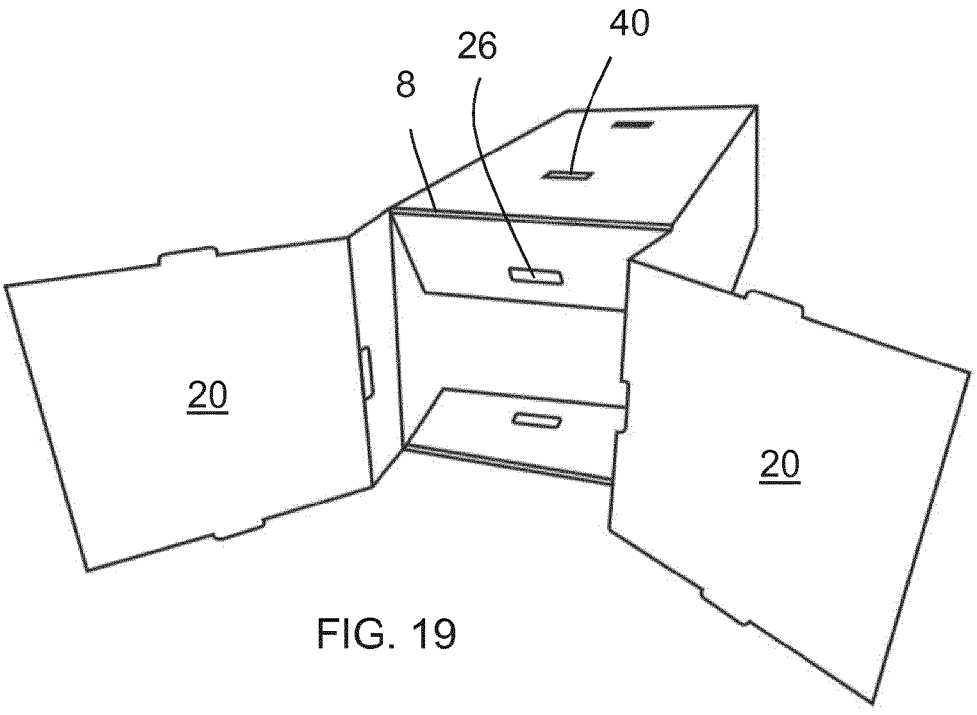

FIG. 19

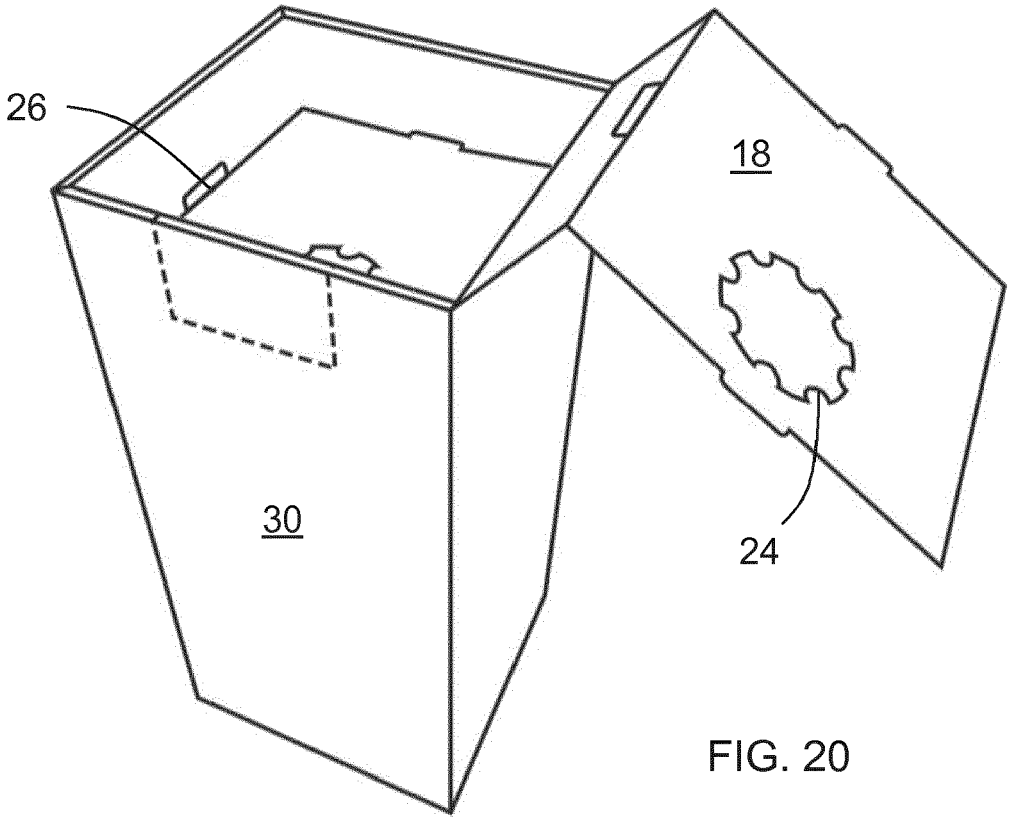

FIG. 20

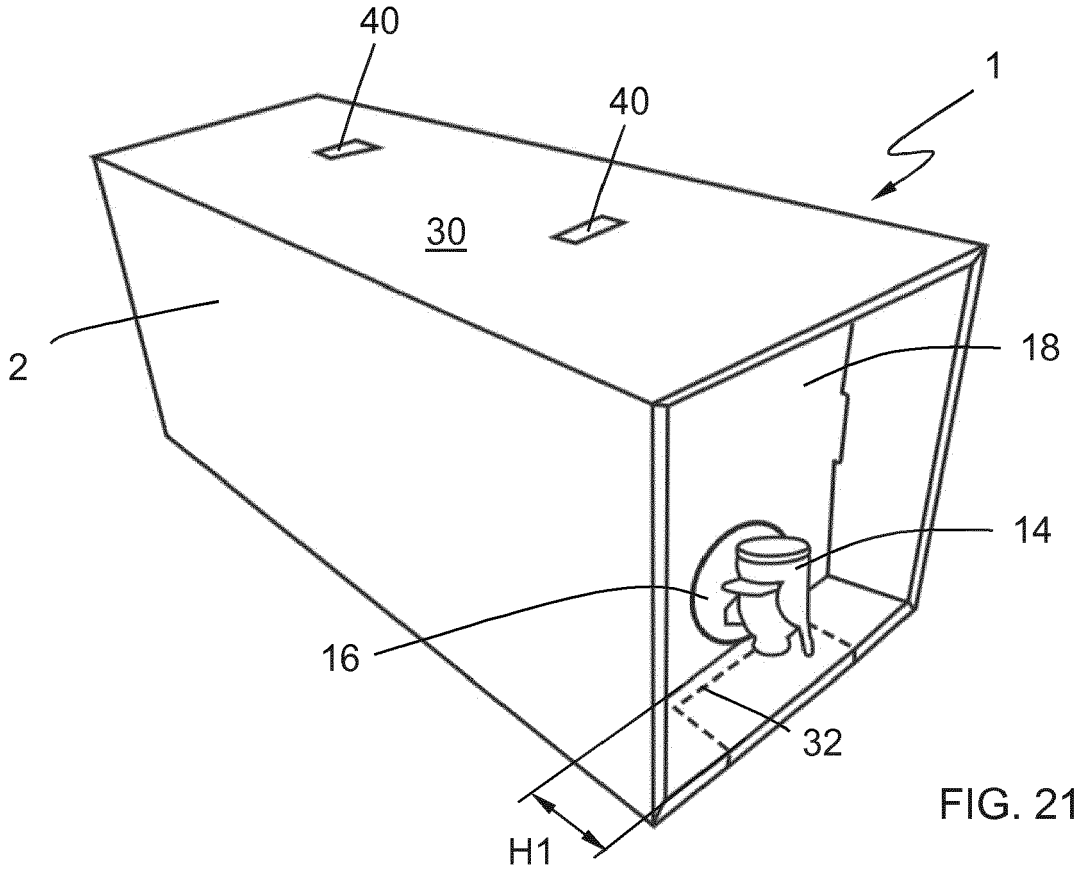

FIG. 21

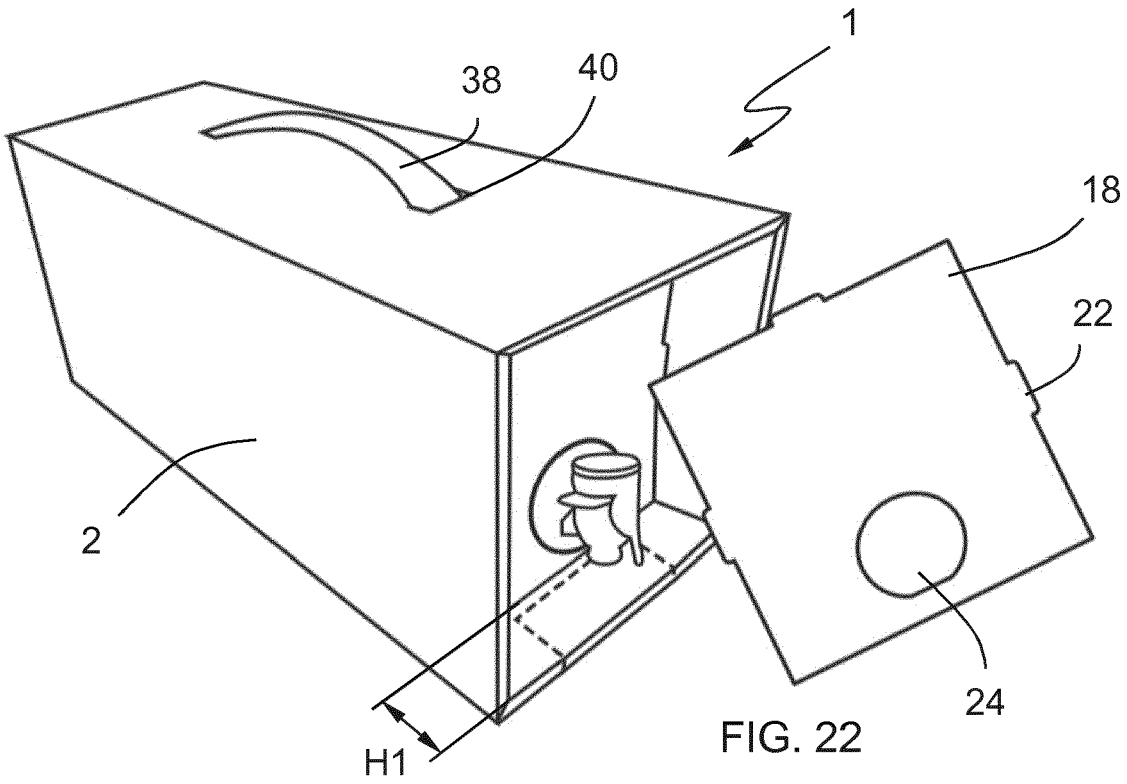

FIG. 22

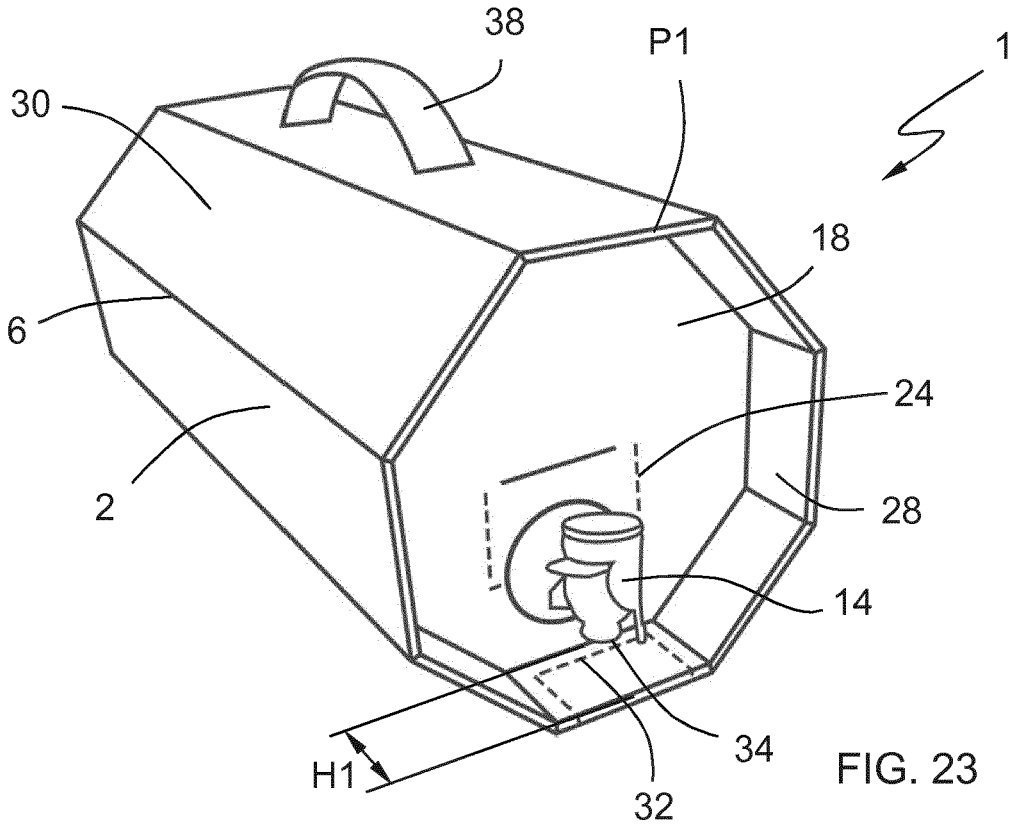

FIG. 23

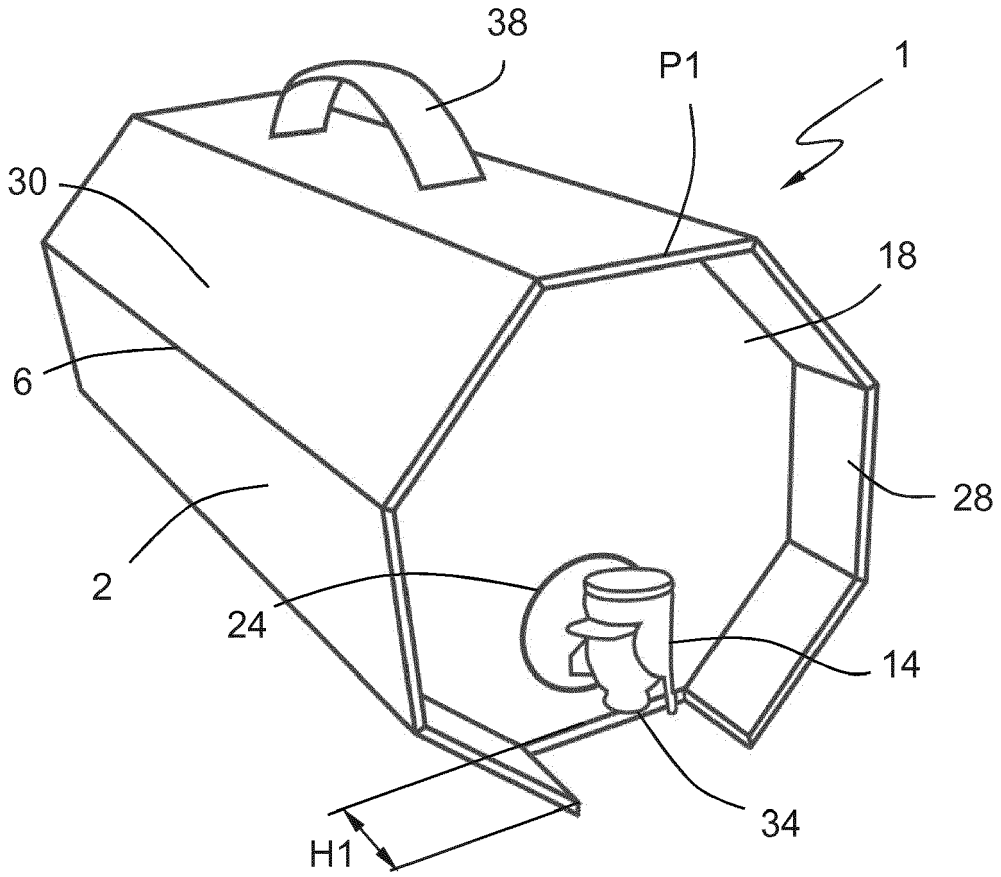

FIG. 24

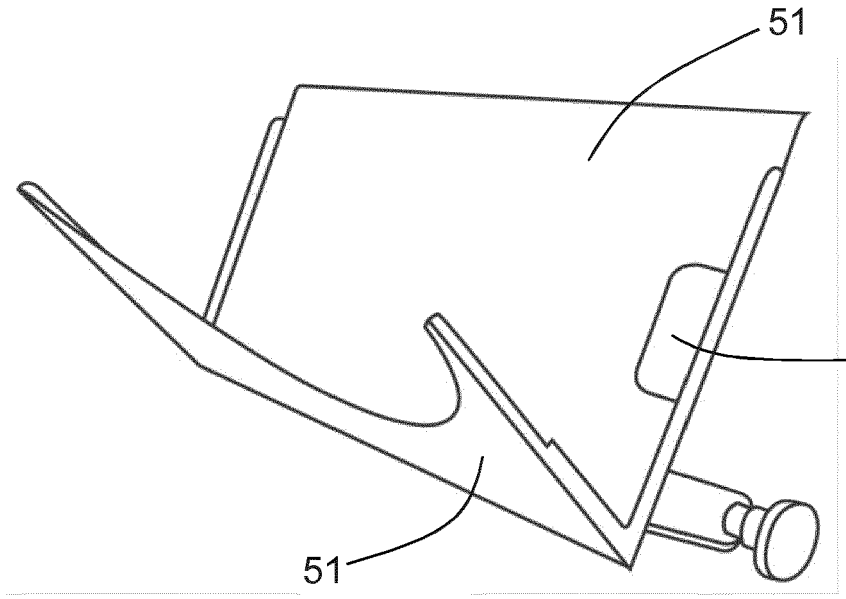

FIG. 25

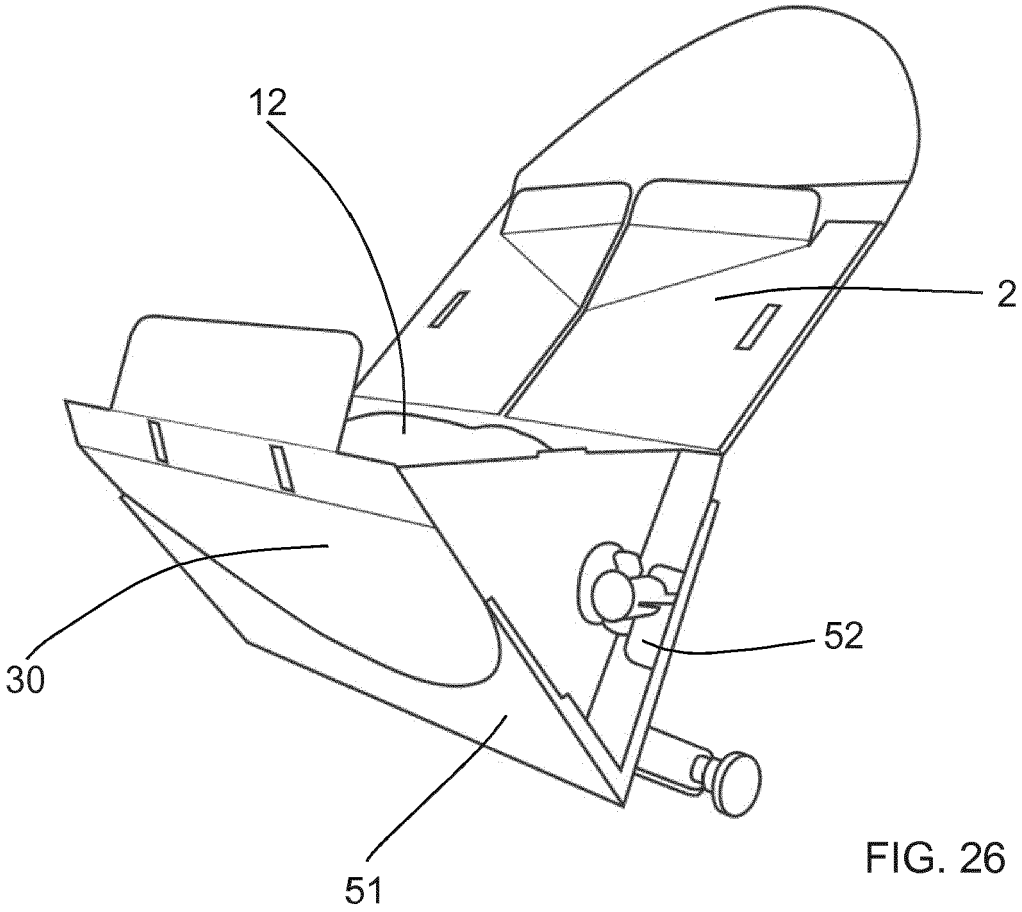

FIG. 26

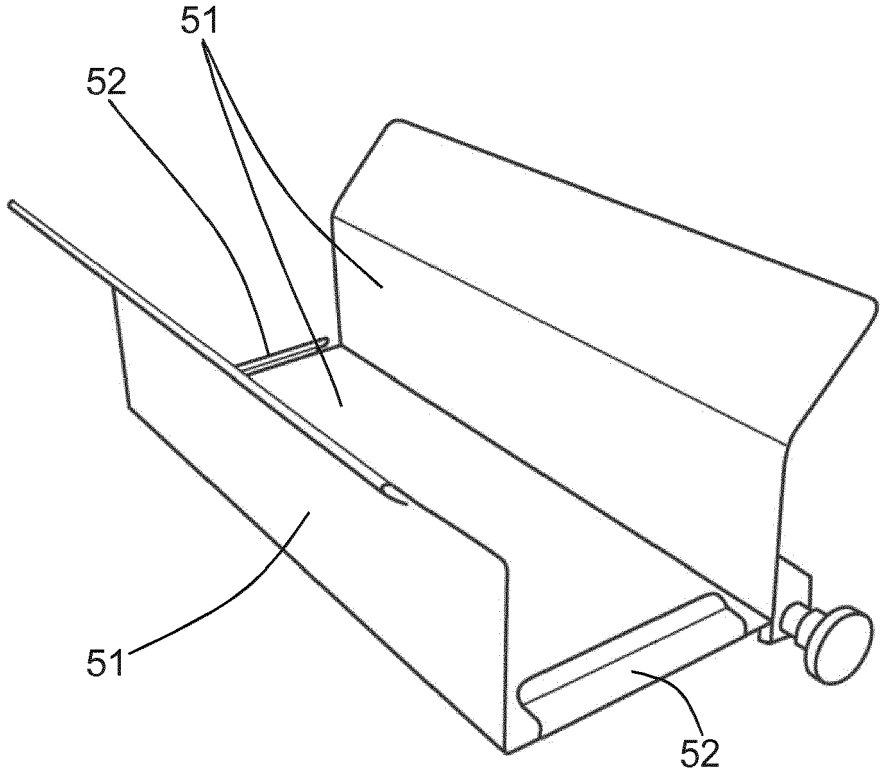

FIG. 27

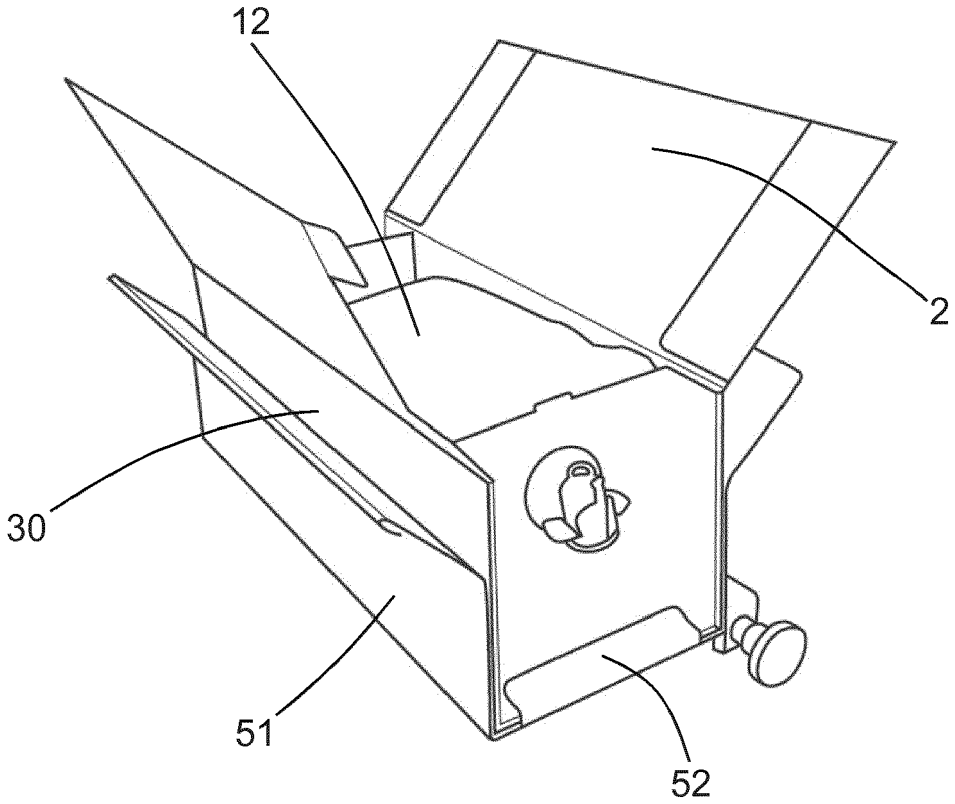

FIG. 28

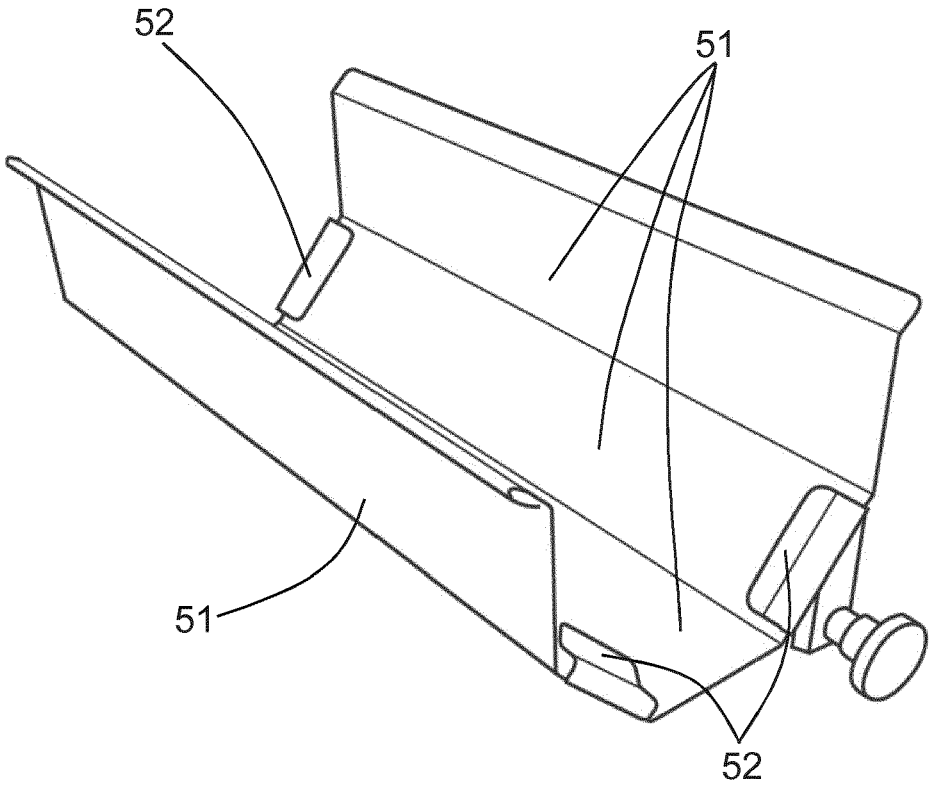

FIG. 29

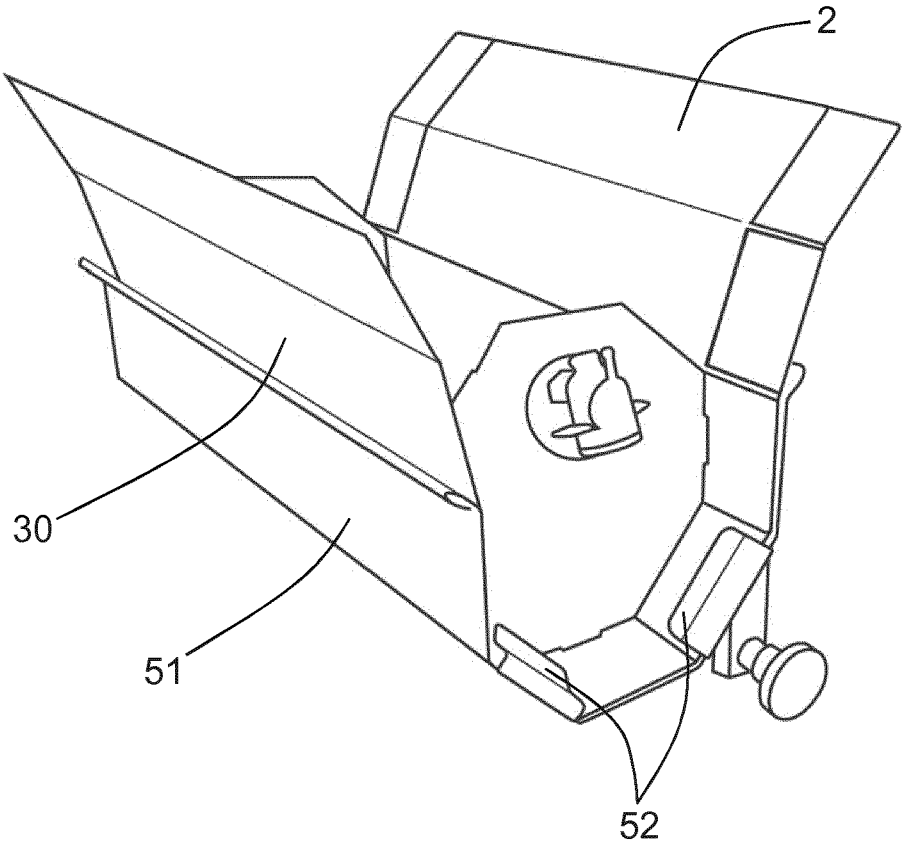

FIG. 30

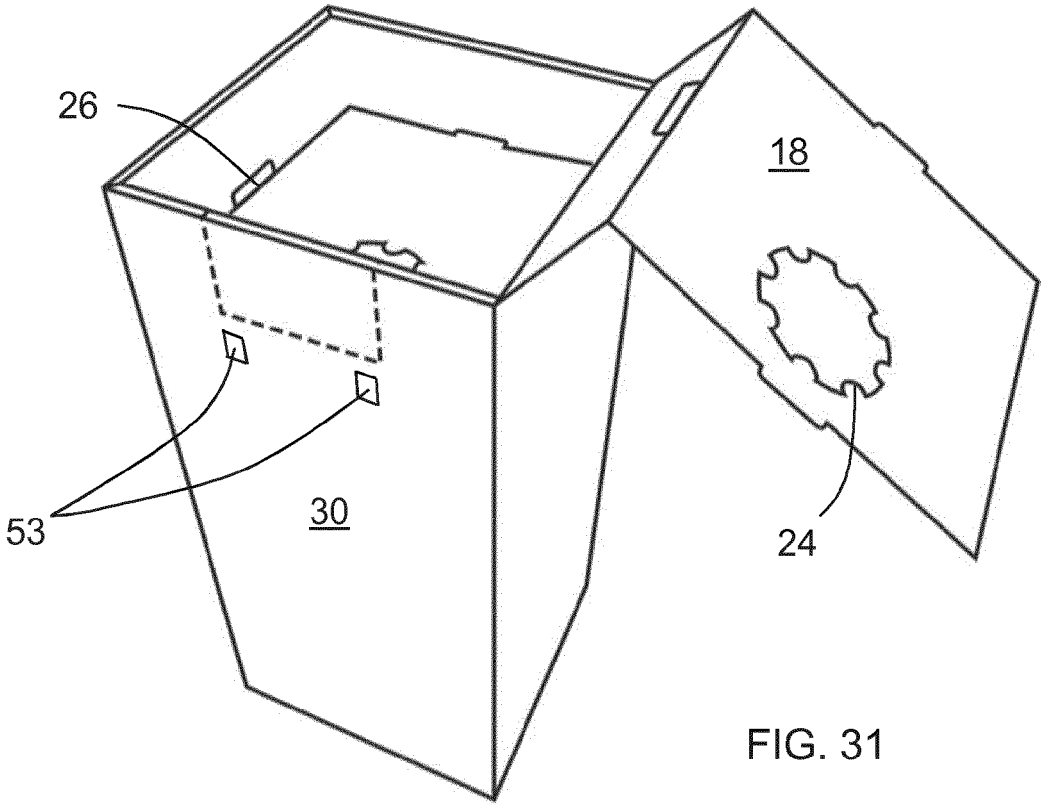

FIG. 31

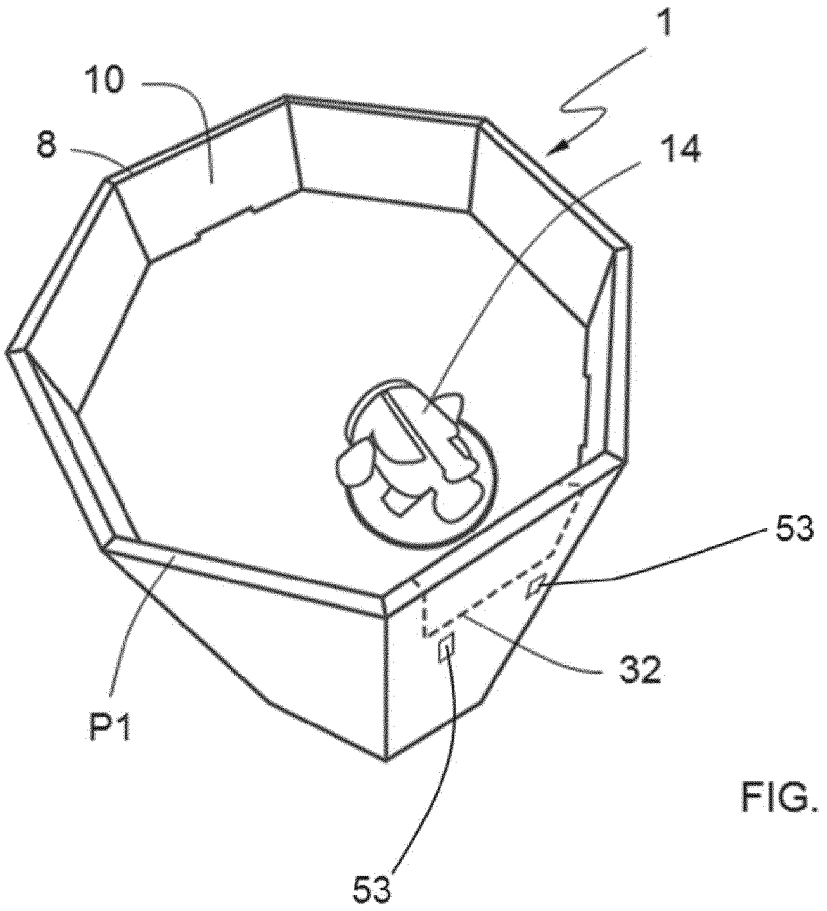

FIG. 32

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EUROPEAN SEARCH REPORT

Application Number
EP 19 16 8976

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2010/301106 A1 (WISECARVER MARK ANTHONY [US] ET AL) 2 December 2010 (2010-12-02) * paragraph [0067] - paragraph [0096]; figures 1-50 *	1-15	INV. B65D77/06
X	US 5 050 775 A (MARQUARDT JOHN R [US]) 24 September 1991 (1991-09-24) * column 2, line 26 - column 7, line 24; figures 1-14 *	1-15	
A	EP 0 524 918 A1 (INCOPLAS NV SA [BE]) 27 January 1993 (1993-01-27) * column 8, line 57 - column 13, line 7; figures 1-7 *	1-15	
A	US 2011/062223 A1 (WALL KERRY D [US] ET AL) 17 March 2011 (2011-03-17) * paragraph [0016] - paragraph [0033]; figures 1-3B *	1-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	7 August 2019	Lämmel, Gunnar

CATEGORY OF CITED DOCUMENTS

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E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 19 16 8976

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07-08-2019

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010301106 A1	02-12-2010	CA 2763473 A1	02-12-2010
		CN 102481999 A	30-05-2012
		EP 2435327 A1	04-04-2012
		TW 201103840 A	01-02-2011
		US 2010301106 A1	02-12-2010
		WO 2010138174 A1	02-12-2010
US 5050775 A	24-09-1991	NONE	
EP 0524918 A1	27-01-1993	AT 112745 T	15-10-1994
		BE 1004257 A5	20-10-1992
		CA 2074558 A1	26-01-1993
		DE 524918 T1	08-07-1993
		DE 69200522 D1	17-11-1994
		EP 0524918 A1	27-01-1993
		ES 2038101 T1	16-07-1993
		GR 930300041 T1	07-06-1993
		US 5228589 A	20-07-1993
US 2011062223 A1	17-03-2011	CA 2714806 A1	15-03-2011
		US 2011062223 A1	17-03-2011

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82