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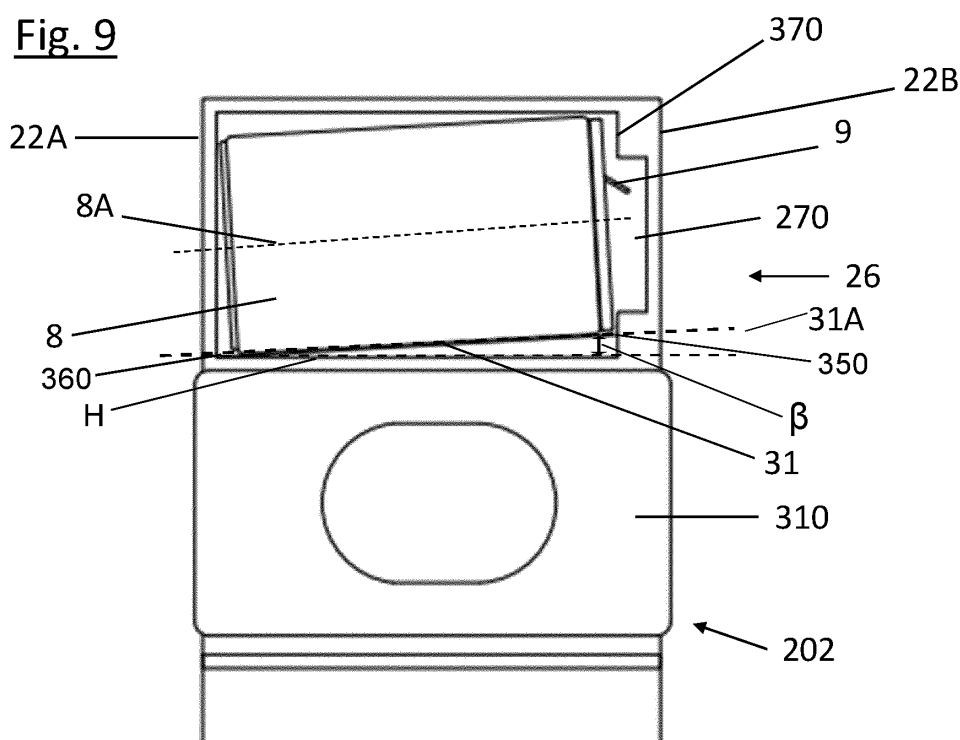
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(54) **BEVERAGE STORAGE AND TRANSPORT DEVICE**

(57) The invention relates to a beverage storage device for collecting and dispensing beverage containers, wherein the beverage storage device comprises:
- a housing configured to accommodate multiple beverage containers, wherein the housing comprises a front wall, a rear wall, a left side wall, and a right side wall, the walls defining an inner volume for storing multiple beverage containers, and wherein the housing defines an entry opening and a dispensing opening for respectively

entering beverage containers into the housing and taking out beverage containers from the housing,
- at least a first guide element comprising a first end, located at a side wall, and a free second end, the first guide element defining a guide path comprising at least one turn and meandering from the entry opening to the dispensing opening.
wherein the guide path extends between the entry opening and the dispensing opening.

Fig. 9



Description

FIELD OF THE INVENTION

[0001] The field of the invention relates to the transport and storage of beverage containers.

BACKGROUND OF THE INVENTION

[0002] In the field of transporting and storing beverage containers, various devices exist. US6173582B2 discloses a self-dispensing portable cooler. The portable cooler has cooling means 16 which define a serpentine shaped channel. A problem associated with the cooler of US6173582B2 is that whenever the cooler is filled with new cans or bottles, the cans are inserted via the inlet opening 12 at the top. The cans or bottles subsequently roll down the serpentine shaped channel and drop at each turn. For carbonated drinks such as soda and beer, this rolling and dropping motion will tend to cause a lot of foam after opening of the can or bottle. This takes away much of the fun of having a cold beer or soda.

[0003] Additionally, it was recognized in the present invention that the cooler of US6173582B2 is suitable for dispensing only and not suited to be used for collecting empty beverage containers. The small liquid leftovers inside the consumed beverage containers can easily spill from the beverage container onto the internal surfaces of the cooler. The spillage of liquid beverages may start to smell or may make new beverage containers sticky when they are inserted after empty beverage containers. The internal surfaces are difficult to clean due to the serpentine shaped channels and closed side walls.

[0004] US2008/0229778A1 discloses a portable beverage dispensing cooler having channels with a vertical portion, see fig. 4. This cooler has a similar problem with excessive foam, namely that during filling the cans or bottles are dropped over a considerable distance into the channels, resulting in cans or bottles that fizz over after opening, at least if they contain a carbonated drink. Also, the beverage dispenser of US2008/0229778A1 is not very suitable for collecting empty beverage cans.

[0005] Another example of such a device has been disclosed in US4721237. This document discloses a portable cooler for beverage cans that may be worn as a backpack and comprises two components. A first component is a box in which cans can be placed. The box comprises a centre wall or side walls that are cooling elements and that have a undulated shape. It is believed that this undulated shape is aimed at aiding the smooth descent of a can from an entry opening at the top of the box to a dispensing opening at the bottom. At the dispensing opening, a lid is provided that can be opened in order to access the lowermost can. In turn, the box can be placed within a bag that comprises a zipper-cover that aligns with the lid of the dispensing opening. At the upper end of the bag, a zipper-cover closes off the entry opening.

[0006] Because the box is open at the top, i.e. doesn't comprise a lid for the entry opening, moving around or laying down the box in any orientation other than upright might cause cans to fall out. To transport the device, the bag will therefore almost always be needed to close off the box. Also because the cooling elements are the walls, either the entire device must be placed in a freezer to cool the elements, or the box must be disassembled prior to being placed in a freezer. This results in the box having to be independently cooled from the cans and in doing so, taking up a large amount of space in a freezer or fridge.

[0007] Additionally, increasing the capacity of the box by widening it would reduce the impact of the undulated walls because, of three or more cans, only the outer cans would interact with the walls. Alternatively, to maintain the effect of the undulating walls, the walls would become increasingly high for a growing number of cans in order to maintain a stack of cans that is two cans wide and contacts the undulated walls on both sides.

[0008] The device of US4721237 is also not suitable for collecting empty cans, for the same reason as mentioned above.

[0009] US7344028B2 relates to an existing packaging for beverage cans called a fridge pack. The fridge pack is a closed cardboard box that is configured to hold twelve beverage cans. On a first side of the cardboard box, part of the box is removable in order to gain access to the contents of the box. To transport such a fridge pack, a cooling bag is provided that is manufactured from a flexible and thermally insulative material. When the fridge pack is placed in the bag, a lid is zipped shut to close off the bag. When a user wants to get a beverage out of the box located in the bag, an elastically moveable lid is opened that gives access to the first side of the fridge pack where the cardboard has been removed. This permits a user to access the contents.

[0010] A drawback of the device is that the cardboard box is not easily reusable because it is only designed to take out beverages, and creates unnecessary litter. Additionally, because the bag is a simple cooling bag made out of insulative material, the heating of its contents is only minimally slowed down and the contents can only become hotter than when they entered the bag.

OBJECT OF THE INVENTION

[0011] It is an object of the invention to overcome at least one of the abovementioned drawbacks and to provide a device for transporting and/or storing beverage containers.

SUMMARY OF THE INVENTION

[0012] In one aspect, the invention relates to a beverage storage device for collecting and dispensing beverage containers, wherein the beverage storage device comprises:

- a housing configured to accommodate multiple beverage containers, in particular beer cans, wherein the housing comprises a front wall, a rear wall, a left side wall, and a right side wall, the walls defining an inner volume for storing multiple beverage containers, and wherein the housing defines an entry opening located in an upper area and a dispensing opening located in a lower area for respectively entering beverage containers into the housing and taking out beverage containers from the housing,
- at least a first guide element comprising a first end, located at a side wall, and a free second end, the first guide element defining a guide path comprising at least one turn and meandering from the entry opening to the dispensing opening.

wherein the entry opening is located at the first end of the first guide element and wherein the guide path extends between the entry opening and the dispensing opening along at least the first guide element, wherein the beverage storage device comprises multiple guide elements being located at a first vertical distance from each other, the multiple guide elements defining the guide path in a meandering shape, allowing beverage containers to move (in particular roll) from the entry opening to the dispensing opening,

wherein the guide path is parallel to the front wall and the rear wall,

wherein each guide element defines a lateral axis which extends orthogonal to the guide path and extends parallel to an upper surface of the guide element, wherein the lateral axis is slanted to incline a longitudinal axis of each beverage container in the housing,

wherein, odd ordinally numbered guide elements extend away from the left side wall or from the right side wall and even ordinally numbered guide elements extend away from the other, wherein the guide path has a meandering shape that is oriented around each second free end of the guide elements and comprises subsequent turns at the left wall and the right wall,

wherein, at least part of one of the front wall and rear wall is hingedly connected to one of the left side wall, right side wall, or to one of a bottom wall and a top wall, wherein the hingeable part can be opened to create access for a user to the inner volume for filling the inner volume with beverage containers.

[0013] By comprising an entry opening and a dispensing opening and a guide path that extends between them, the beverage storage device can be used to easily store and dispense beverages. Moreover, when a user would carry the device with him, once a dispensed beverage container has been emptied, i.e. the user drank the contents, the beverage container can be easily reinserted in the beverage storage device. Not only does this poten-

tially reduce littering due to ease of use, it also offers the possibility to store empty beverage containers so that they do not deform and can be returned to stores to collect the deposit that has been paid for the container.

[0014] By having the guide elements create a meandering shape, the beverage containers can travel along the guide path in a controlled manner instead of randomly sorting themselves and falling over the entire height of the housing as would be the case if no guide elements would be present. This ensures a first in first out dispensing system that may be beneficial in a number of circumstances, e.g. when the beverage storage is used to store empty beverage containers and/or when the beverage storage device is cooled.

[0015] The dispensing opening being located in a lower part is useful, because in doing so, the beverage containers may travel through the device under the influence of gravity. When a beverage container has travelled all along the guide path, it will abut against a side wall and an opening in the front or rear wall will provide access for a user to the beverage container. It would also be possible for the dispensing opening to be located in one of the side walls. However, in such a case a retaining element would have to be present to keep a beverage container having travelled through the device inside the housing instead of falling out of the dispensing opening. Preferably, the dispensing opening is provided in a lower area of the left side wall or right side wall.

[0016] The slanted lateral axis of the guide elements inclines the longitudinal axis of the beverage containers in the housing. This is particularly useful for consumed beverage containers which are reinserted and still contain a small amount of liquid leftovers. The spillage of liquid leftovers is reduced due to the difference in height between the bottom and top of beverage containers, forcing the liquid with gravity to the closer bottom side. Less spillage diminishes unwanted smell from the beverage storing device and stickiness on the beverage containers.

[0017] The additional access which is provided by the openable part of the front wall or rear wall allows a user to directly access the inner volume for filling it with beverage containers. The beverages can be placed more carefully than by simply inserting them in the entry opening. If one were to insert a first can in the entry opening of an empty housing, the can would tumble and drop all the way along the guide path. This would shake the beverage and cause unnecessary and unwanted foaming when opening the beverage container.

[0018] In some embodiments, the free second end of each guide element is located at a second vertical distance below the first end of that guide element causing the guide path to be slanted over each guide element.

[0019] In some embodiments the beverage storage device may have one turn at the left side wall or the right side wall and multiple turns at the other side wall, or the beverage storage device may have multiple turns at the left side wall and multiple turns at the right side wall.

[0020] By being slanted, the guide elements promote

a good throughput of beverage containers under the influence of gravity.

[0021] In some embodiments, a drop opening is located between a free second end and a side wall, wherein the guide path extends through the drop opening and the drop opening is configured to allow a beverage container to drop on a guide element located below the drop opening. Such an opening allows beverage containers to travel all along the guide path.

[0022] In some embodiments, the beverage storage device comprises a tab recess in an inner surface of the rear wall, wherein the tab recess is configured to accommodate a protruding opening tab of each used beverage container, wherein said tab recess extends from the entry opening to the dispensing opening.

[0023] This is particularly useful to simplify the reinsertion of consumed beverage containers, because for consumed beverage containers the opening tab may be bent upward and outward. The tab recess increases the space for the protruding opening tab while maintaining a guiding surface above and below the tab recess which guides the upper end of the beverage container. The tab recess prevents consumed beverage containers from getting stuck in the inner volume. The tab recess may also be useful for pointing out the correct orientation for the reinsertion of consumed beverage containers. At the entry opening, a visual marking may be provided to indicate to the user that the upper side of the beverage container should be positioned at the side of the entry opening having the tab recess. The tab recess can be provided at the right side of the entry opening as viewed from the position of a user. The tab recess is positioned on the higher side of the slanted lateral axis.

[0024] In some embodiments, a slant angle (β) which is enclosed between the lateral axis and the horizontal (H) is between 0,5 and 10 degrees, preferably 2-6 degrees. It was found that this angle significantly reduces spillage of beverage. In practice, zero spillage cannot be guaranteed because this depends on the volume of beverage which is left over in the beverage container. However, a significant reduction is possible with these angles.

[0025] In some embodiments, the housing and the at least one guide element define an inner volume, wherein the inner volume is configured to accommodate at most 50 beverage containers and at least 6 beverage containers along the guide path. Such an amount of beverage containers keeps the beverage storage device portable.

[0026] In some embodiments, the inner volume is configured to hold cans of between 250ml and 500ml, in particular either standardized 250ml, 330ml or 500ml cans.

[0027] In some embodiments, the inner volume is configured to hold cans having a height of 100-200mm, in particular 115,2 mm, more in particular 168mm, and a diameter of 50-70mm, in particular 66,3mm, more in particular 58,1mm.

[0028] In some embodiments, each guide element defines a row and each row is configured to hold 2-10 beverage containers along the guide path.

[0029] In some embodiments, the dispensing opening is located at the second end of a lowermost guide element. This location for the dispensing opening ensures an optimal use of the amount of space within the housing.

[0030] In some embodiments, the beverage storage device is flat, wherein a width and height of the housing are greater than a depth and wherein the front and rear wall have a larger surface area than the left and right wall and the bottom and top wall.

[0031] In some embodiments, the guide path is parallel to the front and rear wall.

[0032] In some embodiments, any of the front wall, the rear wall, the left side wall, the right side wall, the bottom wall, and the top wall defines a cooling cavity configured to accommodate a cooling component, in particular the cooling component being an ice pack or cool pack.

[0033] By providing such a cooling cavity, the beverage containers located within the housing can be cooled and/or kept cool. Herein, the first in first out principle is also beneficial.

[0034] In some embodiments, an entry lid is provided at the entry opening, in particular the entry lid being resiliently and pivotably connected to the housing and configured to close off the entry opening.

[0035] In some embodiments, a dispensing lid is provided at the dispensing opening, in particular the dispensing lid being resiliently and pivotably connected to the housing and configured to close off the dispensing opening.

[0036] By providing an entry lid and/or a dispensing lid, the housing can be closed by default and can be easily be opened by a user when the user wants to access a beverage container. This is beneficial when the beverage storage device is transported or moved around in various operations where, with an open housing, the beverage containers might fall out.

[0037] In some embodiments, the entry lid is moveable into the housing and the dispensing lid is moveable in a direction out of the housing. These directions facilitate the action of inserting and taking out a beverage container from the housing. Both actions could be executed with one hand instead of two (one for operating the lid and one for moving the beverage container).

[0038] In some embodiments, an entry lid is provided at the entry opening, in particular the entry lid being resiliently slidable along the surface of the housing and configured to close off the entry opening.

[0039] In some embodiments, a dispensing lid is provided at the dispensing opening, in particular the dispensing lid being resiliently slidable along the surface of the housing and configured to close off the dispensing opening.

[0040] In some embodiments, the beverage storage device is configured for holding cans or bottles.

[0041] In some embodiments, the beverage storage device further comprises at least one handle, wherein the handle is configured to aid a user in lifting the beverage storage device. This may aid a user in manipulating

the beverage storage device in, for example, a supermarket or any other situation.

[0042] In some embodiments, one of the walls comprises a stacking protrusion and an opposite wall defines a stacking recess. Herein, the stacking protrusion of a first beverage storage device and the stacking recess of a second beverage storage device are configured to mate when the first and second beverage storage device are stacked on top of each other. This is beneficial because the two storage devices won't slide relative to each other and thus create a more stable stack. This is especially useful when the beverage storage device is stored in large numbers such as in supermarkets or at breweries.

[0043] In some embodiments, the beverage storage device comprises at least one wheel and a handle and is formed as a trolley suitcase. In doing so, the beverage storage device may be easily transported.

[0044] In some embodiments, the wheels and handle are positioned at the front wall side. In that case, the surface of the front wall side of the guide element may be lower than the surface of the rear wall side of the guide element. The slanted lateral axis of the guide element is configured to incline the longitudinal axis of each beverage container. This ensures that the opening of beverage container is always pointed upwards when the beverage storage is tilted during transport.

[0045] In some embodiments, outer dimensions of the device are 350-500mm high, 200-350mm wide or vice versa, and 100-250mm deep.

[0046] In another independent aspect, the invention relates to a combination of a beverage storage device according to any of claims 1-17 and a transport device for transporting the beverage storage device, wherein the transport device comprises a transport housing defining a device holding space substantially matching outer dimensions of the beverage storage device, wherein the transport housing also defines a placement opening through which the beverage storage device can be placed in the device holding space. Herein the transport housing defines an entry communication opening and a separate dispensing communication opening, the entry communication opening at least partially aligning with the entry opening of the beverage storage device and the separate dispensing communication opening at least partially aligning with the separate dispensing opening of the beverage storage device when the beverage storage device is located in the device holding space.

[0047] Such a transport device can be used to transport a beverage storage device, which is especially beneficial when the beverage storage device is filled with beverage containers.

[0048] In some embodiments, the housing of the beverage storage device comprises a register protrusion or defines a register recess and the transport device comprises or defines the other, wherein the dimensions of the register protrusion and the register recess match. When the beverage storage device is placed in the device

holding space, the register recess engages the register protrusion, in particular the register recess and the register protrusion connect the transport device and the beverage storage device to each other. More in particular the transport device and the beverage storage device are interlocked to each other. With such a register connection, the beverage storage device can sturdily kept in place. Also, the orientation of the beverage storage device relative to the transport device is defined.

[0049] In some embodiments, the register protrusion is a rail and the register recess is configured to slide over the rail and wherein the beverage storage device is slid into the device holding space of the transport device along the rail.

[0050] In some embodiments, the register recess is provided at the front side and the register protrusion is provided on a front side of the transportation housing, wherein the slanted lateral axis ensures an increment in the inclination of the longitudinal axis of the beverage container during transport.

[0051] In some embodiments, the transport device further comprises a retaining element moveably located at the placement opening, wherein the retaining element is configured to retain the beverage storage device in the device holding space.

[0052] By retaining the beverage storage device in the holding space with a retaining element, the beverage storage device is kept in the transport device when the transport device is not in an upright position.

[0053] In some embodiments, at least one wall of the transport housing defines a cooling cavity configured to accommodate a cooling component, in particular the cooling component being an ice pack or cool pack.

[0054] By defining cooling cavities in the transport housing, the beverage storage device can easily be cooled down when it is placed inside the transport housing. It also becomes possible to cool the beverage storage device together with contents in the fridge while it takes up a minimal amount of space and to cool cooling elements separately. This ensures a minimal amount of space that has to be taken up in cooling facilities such as fridges and freezers.

[0055] In some embodiments, an entry communication lid is provided at the entry communication opening, in particular the entry communication lid being resiliently and pivotably connected to the transport housing and configured to close off the entry communication opening.

[0056] In some embodiments, a dispensing communication lid is provided at the dispensing communication opening, in particular the dispensing communication lid being resiliently and pivotably connected to the transport housing and configured to close off the dispensing communication opening.

[0057] By closing off both openings with moveable lids, the inner volume can be easily reached without it falling out during transport or manipulation of the transport device.

[0058] In some embodiments, the entry communica-

tion lid is moveable into the transport housing and the dispensing communication lid is moveable in a direction out of the transport housing.

[0059] These direction facilitate the action of inserting and taking out a beverage container from the housing. Both actions can be executed with one hand instead of two (one for operating the lid and one for moving the beverage container).

[0060] In some embodiments, at least one rolling element, such as wheel, and a handle are connected to the transport housing, wherein the transport device is configured to be used as a trolley suitcase.

[0061] In some embodiments, a weighted portion is located at a lower end of the transport device, wherein the weighted portion lowers a centre of gravity of the transport device to increase its stability.

[0062] In some embodiments, at least one carrying strap is connect to the transport housing.

[0063] The invention will be more clearly understood from the following description of some preferred embodiments, which are given by way of example only, with reference to the accompanying drawings, and wherein like reference numerals indicate like parts.

BRIEF DESCRIPTION OF THE DRAWINGS

[0064]

Figure 1 shows an isometric view of the beverage storage device comprising beverage containers.

Figures 2A-2C show a front view of the beverage storage device with and without beverage containers and a close up of the dispensing opening.

Figure 3 shows an isometric view of several beverage storage devices of which two have been stacked on top of each other.

Figure 4 shows a combination of a transport device and a beverage storage device in isometric view.

Figure 5A and 5B show isometric views of embodiments of the transport device.

Figure 6 shows a side view of a transport device comprising cooling cavities.

Figure 7 shows an isometric view of another embodiment of the invention.

Figure 8A and 8B show isometric views of the entry opening of the embodiment of fig. 7.

Figure 9 shows a side view of the entry opening of the embodiment of figures 7, 8A and 8B.

Figure 10 shows a side view of the transport device comprising a beverage container in use.

DETAILED DESCRIPTION OF THE DRAWINGS

[0065] Looking at figures 1 and 2A-2C, the beverage storage device 10 is holding a plurality of beverage containers 8 inside its housing 20. The housing accommodates the beverages containers, being cans, within its front wall 22A, rear wall, left side wall, and right side wall

22D. The walls define an inner volume 24 wherein the multiple beverage containers are stored. To this end, the beverage storage device is flat and a width and height of the housing are greater than a depth and the front and rear wall have a larger surface area than the left and right wall and the bottom and top wall. In order for the beverage containers to be entered in the housing 20, the housing defines an entry opening 26 that is located in an upper area 202 of the housing.

[0066] The entry opening is located at an upper area 202 because this enables gravity to assist in moving the beverage containers through the inner volume 24 and to a dispensing opening 28 defined in a lower area 204 of the housing. The dispensing opening 28 is separate from the entry opening 26. Herein, the dispensing opening is configured for taking out beverage containers from the housing. The dispensing opening 28 is provided in a side wall 22D. The dispensing opening is provided in a lower area 204 of the left side wall or right side wall.

[0067] Further, in order for the beverage containers 8 to smoothly reach the dispensing opening 28, the housing also comprises several guide elements 30. The guide elements comprise a first end 32 that is located at a side wall, i.e. the left side wall or the right side wall, and a free second end 34. In particular, the odd ordinally numbered guide elements, i.e. the first guide element 30A, third guide element 30C, and fifth guide element 30E extend away from the right side wall and the even ordinally numbered guide elements, i.e. the second guide element 30B, fourth guide element 30D, and sixth guide element 30F extend away from the left side wall. Herein, the guide elements 30 define a guide path 40 that extends along the guide elements and is oriented around each second free end 34 of the guide elements and therefore comprises subsequent turns at the left and right side wall. In doing so, the guide path comprises five turns and extends and meanders from the entry opening 26 to the dispensing opening 28 and is parallel to the front and rear wall. In order for the beverage containers to follow the guide path 40, the guide elements 30 are located at a first vertical distance 42 from each other. Further, at each of the turns, a drop opening 46 is located between the second free end and a side wall. The guide path 40 extends through the drop opening and the drop opening is configured to allow a beverage container to drop on a guide element 30 located below the drop opening.

[0068] One option to fill the beverage storage device 10 is to enter beverage containers 8 through the entry opening 26. When there are already several containers inside the housing 20, this is a very practical solution and can, in particular, be used to collect emptied containers to reduce littering and to safely store deposit holding containers. However, when containers are not yet present in the inner volume 24 of the housing 20, this method of filling is less practical. To this end, the front wall 22A is hingedly connected to the left side wall. The hingeable front wall 22A can be opened to create direct access for a user to the inner volume 24 for filling the inner volume

with the beverage containers without the containers bouncing through the entire housing. It is also possible that only a part of the front wall 22A or rear wall 22B is openable.

[0069] When taking out a beverage container 8 through the dispensing opening 28, it is considered to be beneficial if a subsequent container presents itself to be taken out thereafter. This is achieved in part by the free second end 34 of each guide element 30 being located at a second vertical distance 44 below the first end 32 of that same guide element. This causes the guide path 40 to be slanted over that guide element and to let gravity pull the beverage container along the guide path and towards the dispensing opening 28 being located at the second end of a lowermost guide element 30F.

[0070] Depending on the desired purpose of the beverage storage device, the inner volume 24 may be larger or smaller than depicted. In the figures, the inner volume 24 defined by the housing and the guide elements accommodates twenty-four beverage containers and four beverage containers per row defined by each guide element. It is however also possible that a small device is realized that can accommodate 6 beverage containers, such a device being suited for example for a picnic. When one would have a larger party, for example, fifty beverage containers could be desired.

[0071] The nature of the beverage storage device 10 being that is moveable and can be taken with someone to a location such as a park for a picnic, means that it may be moved around a lot. In particular, the device comprises a handle 12 to aid an user in lifting the beverage storage device. In order to prevent the beverage containers to fall or bounce out of the device, an entry lid 262 is provided at the entry opening and a dispensing lid 282 is provided at the dispensing opening. Both lids 262, 282 are connected to the housing and are configured to respectively close off the entry opening 26 and the dispensing opening 28. This prevents the beverage containers from unwantedly exiting the housing 20. To increase the ease of access, the dispensing lid 282 is moveable in an direction out of the housing 20. This prevents having to push back all containers prior to taking out a beverage container 8.

[0072] Turning to figure 3, two beverage storage devices 10A, 10B have been stacked on top of each other. Such a situation will mostly be encountered in a store or at a packaging facility where the beverage containers are entered in the devices. To reduce the beverage storage devices sliding with respect to each other and in that way creating more stable stacks, the beverage storage devices are configured to mate when they are stacked on top of each other. The rear wall 22B comprises a stacking protrusion 222 and the front wall 22A comprises a stacking recess. Herein, the stacking protrusion 222A of a first beverage storage device 10C is configured to mate with the stacking recess 224B of a second beverage storage device 10B when they are stacked on top of each other.

[0073] Turning to figures 4, 5A, and 5B, the beverage

storage device 10 is being placed in a device holding space 64 that is defined by a transport housing 60 of a transport device 50 that is configured for transporting a beverage storage device. The beverage storage device 10 is placed in the device holding space 64 through a placement opening 62 defined by the transport housing. To ensure a good fit, the device holding space 64 substantially matches the outer dimensions of the beverage storage device.

[0074] Because the beverage storage device 10 may be heavy or its shape does not facilitate carrying, a transport device 50 can be used to easily transport the beverage storage device. In particular, the transport device comprises wheels 80A, 80B and a handle 82 that are connected to the transport housing 60 so that it is configured to be used as a trolley suitcase. A weighted portion 84 is located at a lower end of the transport device to give the transport device a low centre of gravity, improving its stability. Instead of the wheels and handle or in addition to them, a carrying strap (not depicted) may also be connected to the transport housing.

[0075] Alternatively, wheels and a handle may also be directly connected to the beverage storage 10 device to form a trolley suitcase. This would at least partially overcome the need for a transport device 50. However, this would make the beverage transport device less suitable to be used in supermarkets or by beverage producers because the device would be heavier, more expensive, and more prone to damage than without the wheels and/or handle.

[0076] In addition to the dimensions substantially matching, the housing of the beverage storage device 10 defines a register recess 14 whose dimensions match those of a register protrusion 54 defined by the transport device 50. When the beverage storage device is placed in the device holding space 64, the register recess 14 is slid over the register protrusion, engages the register protrusion 54 and connects, in particular interlocks, the transport device 50 and the beverage storage device to each other. Here, the register protrusion is a rail over which the register recess 14 is configured to slide.

[0077] In order not to have to pull the beverage storage device 10 out of the transport device 50 every time someone wants a beverage, the transport housing defines an entry communication opening 66 and a dispensing communication opening 68. These two openings at least partially align with the respective entry opening 26 and dispensing opening 28 of the beverage storage device 10 when the beverage storage device is located in the device holding space 64. This allows a user to reach through the transport device 50 into the inner volume 24 of the beverage storage device. Besides the beverage storage device comprising an entry lid and a dispensing lid, the transport device may also comprise an entry communication lid 662 and a dispensing communication lid 682 that are connected to the transport housing and are configured to respectively close off the entry communication opening 66 and the dispensing communication opening

68. Herein, the dispensing communication lid 682 is moveable in a direction out of the transport housing.

[0078] Also, the transport housing defines cooling cavities 70. These cooling cavities 70 serve to accommodate cooling components (depicted in figure 6) such as ice packs or cool packs. In doing so, the beverage storage device can be kept light while the beverages inside can still be kept cool.

[0079] In figure 4, the register recess 14 is provided at the front side 22A and the register protrusion 54 is provided on a front side 380 of the transportation housing. A longitudinal axis 8A is lower at the front side 380 and higher at the rear side. Because the transport device 50 is pivoted forward during transport, this ensures an increment in the inclination of the longitudinal axis 8A of the beverage container during transport.

[0080] In figure 5A, the beverage storage device 10 located in the device holding space can be retained in that position by a retaining element 63. Here, the retaining element 63 is a lid that, when closed, prevents the beverage storage device from sliding out of the transport device 50. This is particularly useful when the combination of the transport device 50 and the beverage storage device 10 are moved around, for example during transport.

[0081] Turning to figure 6, a cooling component 72 is being placed inside a cooling cavity 70 that is configured to accommodate said cooling component. Because cooling components 72 such as ice packs can be placed in the transport device 50 at a location adjoining or adjacent the device holding space 64, the beverage storage device can be effectively cooled, in turn cooling the beverages. It is also possible that the cooling cavities are located in the walls of the beverage storage device 10 instead of in the transport device 50 and that this is done in a similar manner as depicted for the transport device.

[0082] In figure 6, the cooling components are placed in the cooling cavities from the inside of the transport device. This is done to effectively cool the storage device by reducing the thermal path. It may however also possible to place the cooling components in the cooling cavities from the outside. This may facilitate the interchanging of used and fresh cooling components.

[0083] Turning to figure 7, an embodiment of the beverage storage device 10 with the entry opening 26 and the dispensing opening 28 on the same side wall is shown.

[0084] Turning to figures 8A and 8B, an entry lid 310 is provided at the entry opening 26. The entry lid 310 is being resiliently slidable along the surface of the housing and through a sliding recess 320 on both sides of the entry opening 26. The entry lid 310 is configured to close off the entry opening 26. The dispensing opening may be closed by a similar dispensing lid.

[0085] Turning to figure 9, the inclination of an upper surface 31 of each guide element is shown. A lateral axis 31A of each guide element extends from a front wall side 360 to a rear wall side 350 and is slanted to incline the

longitudinal axis 8A of each beverage container 8 in the housing 20. In case the housing is moved using a trolley system, the wheels and handle may be positioned at the front wall side 360. A slant angle (β) which is enclosed between the lateral axis and the horizontal (H) is between 0,5 and 10 degrees, preferably 2-6 degrees.

[0086] The surface of the front wall side 360 of the guide element may be lower than the surface of the rear wall side 350 of the guide element. This ensures that the opening of beverage container is always pointed upwards when the beverage storage is tilted in a forward direction during transport. In figure 9, the entry opening has a tab recess 270 in an inner surface 370 of the rear wall 22A for a protruding opening tab 9 of each consumed beverage container 8. This is particularly useful to simplify the reinsertion of consumed beverage containers, because it increases the space for the protruding opening tab. The tab recess prevents used beverage containers from getting stuck. It may also be useful for pointing out the correct orientation for the reinsertion of consumed beverage containers. The dispensing opening 28 may contain the same tab recess 270 and the tab recess may extend along the entire guide path from the entry opening 26 to the dispensing 28.

[0087] Turning to figure 10, the beverage storage device 10 is shown during transportation. The handle 82 and the wheels 80 are positioned on a front wall side 360 of the transport device 50 and the inclination of the longitudinal axis 8A is oriented upward in a rearward direction. The inclination of the longitudinal axis 8A is further increased due to the tilted orientation of the transportation device 50. A longitudinal axis 8B shows the inclination of each beverage container when the beverage storage device is in an upward position. The tilted orientation further reduces the spillage of liquid from the beverage containers.

[0088] The terms "a" or "an", as used herein, are defined as one or more than one. The term plurality, as used herein, is defined as two or more than two. The term another, as used herein, is defined as at least a second or more. The terms including and/or having, as used herein, are defined as comprising i.e., open language, not excluding other elements or steps.

[0089] Any reference signs in the claims should not be construed as limiting the scope of the claims or the invention. It will be recognized that a specific embodiment as claimed may not achieve all of the stated objects.

[0090] The mere fact that certain measures are recited in mutually different dependent claims does not indicate that a combination of these measures cannot be used to advantage.

[0091] White lines between text paragraphs in the text above indicate that the technical features presented in the paragraph may be considered independent from technical features discussed in a preceding paragraph or in a subsequent paragraph.

Claims

1. Beverage storage device (10) for collecting and dispensing beverage containers (8), wherein the beverage storage device comprises:

- a housing (20) configured to accommodate multiple beverage containers, in particular beer cans, wherein the housing comprises a front wall (22A), a rear wall (22B), a left side wall (22C), and a right side wall (22D), the walls defining an inner volume (24) for storing multiple beverage containers, and wherein the housing defines an entry opening (26) located in an upper area (202) and a dispensing opening (28) located in a lower area (204) for respectively entering beverage containers into the housing and taking out beverage containers from the housing,

- at least a first guide element (30) comprising a first end (32), located at a side wall, and a free second end (34), the first guide element defining a guide path (40) comprising at least one turn and meandering between the left side wall and the right side wall from the entry opening to the dispensing opening,

wherein the entry opening is located at the first end of the first guide element and wherein the guide path extends between the entry opening and the dispensing opening along at least the first guide element,

wherein the beverage storage device further comprises multiple guide elements being located at a first vertical distance (42) from each other, the multiple guide elements defining the guide path in a meandering shape, allowing beverage containers to move from the entry opening to the dispensing opening,

wherein odd ordinally numbered guide elements extend away from the left side wall or from the right side wall and even ordinally numbered guide elements extend away from the other side wall, wherein the guide path has a meandering shape that is oriented around each second free end of the guide elements and comprises subsequent turns at the left wall and the right wall, wherein the guide path is parallel to the front wall and the rear wall,

wherein each guide element defines a lateral axis (31A) which extends orthogonal to the guide path and extends parallel to an upper surface (31) of the guide element, wherein the lateral axis is slanted to incline a longitudinal axis (8A) of each beverage container in the housing,

wherein at least part of one of the front wall and rear wall is hingedly connected to one of the left side wall, right side wall, or to one of a bottom wall and a top wall, wherein the hingeable part can be opened to create access for a user to the

inner volume for filling the inner volume with beverage containers.

2. Beverage storage device according to claim 1, wherein the free second end of each guide element is located at a second vertical distance (44) below the first end of that guide element causing the guide path to be slanted over each guide element.
3. Beverage storage device according to any of the preceding claims, wherein the dispensing opening is located at the second end of a lowermost guide element.
4. Beverage storage device according to any of the previous claims, wherein an entry lid (262) is provided at the entry opening, in particular the entry lid being resiliently and pivotably connected to the housing and configured to close off the entry opening.
5. Beverage storage device according to any of the preceding claims, wherein the dispensing opening is provided in a lower area (204) of the left side wall or right side wall.
6. Beverage storage device according to any of the previous claims, wherein one of the walls comprises a stacking protrusion (222) and an opposite wall defines a stacking recess (224), wherein the stacking protrusion of a first beverage storage device and the stacking recess of a second beverage storage device are configured to mate when the first and second beverage storage device are stacked on top of each other.
7. Beverage storage device according to any of the previous claims, wherein the beverage storage device comprises at least one wheel and a handle and is formed as a trolley suitcase.
8. Beverage storage device according to the preceding claim, wherein the wheels and handle are positioned at a front wall side (360), wherein the surface of the front wall side of the guide element is lower than the surface of a rear wall side (350) of the guide element, and wherein the slanted lateral axis (31A) of the guide element is configured to incline the longitudinal axis of each beverage container.
9. Combination of a beverage storage device (10) according to any of claims 1-6 and a transport device (50) for transporting the beverage storage device,

wherein the transport device comprises a transport housing (60) defining a device holding space (64) substantially matching outer dimensions of the beverage storage device, wherein the transport housing also defines a placement

opening (62) through which the beverage storage device can be placed in the device holding space,

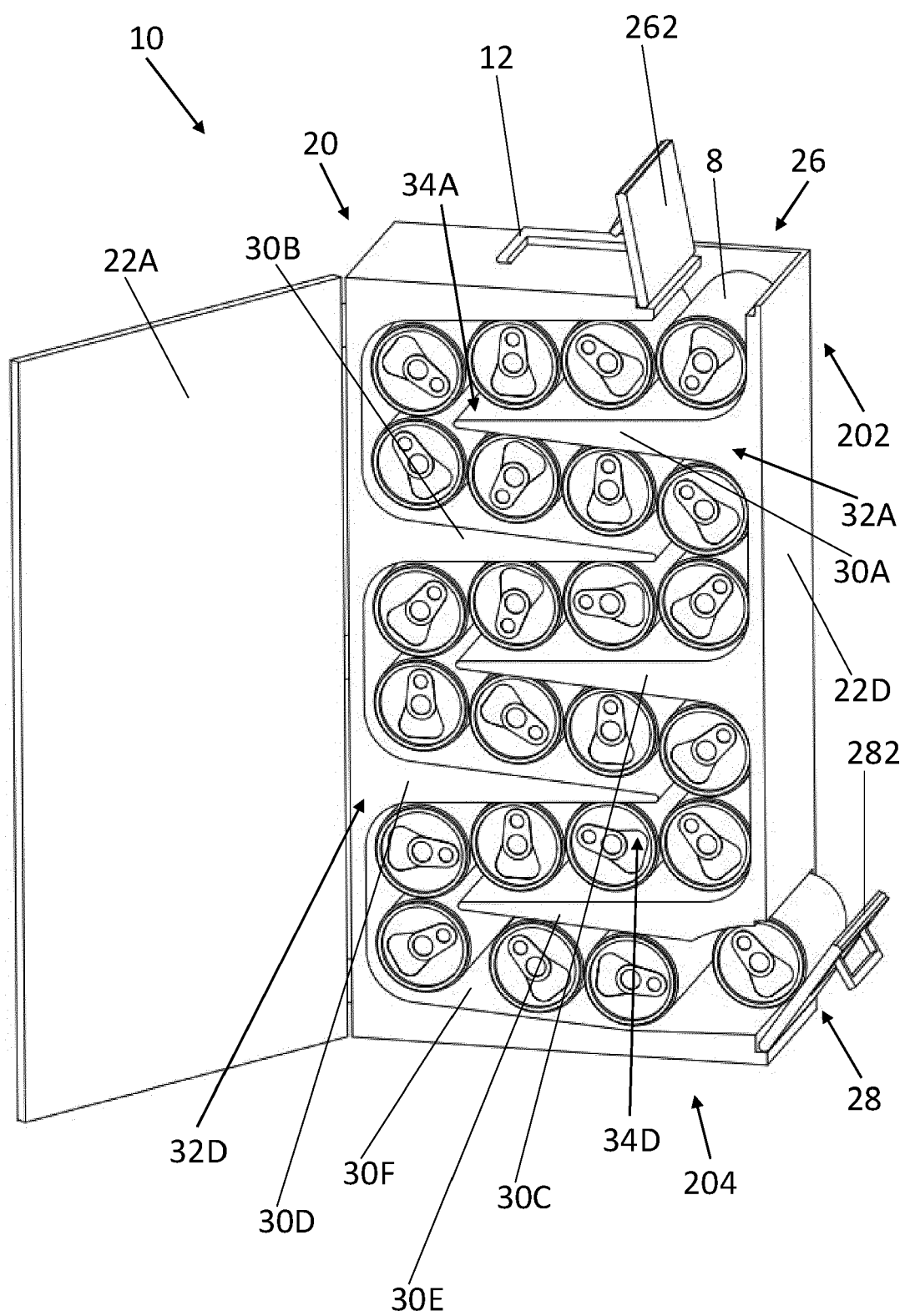
wherein the transport housing defines an entry communication opening (66) and a separate dispensing communication opening (68), the entry communication opening at least partially aligning with the entry opening of the beverage storage device and the dispensing communication opening at least partially aligning with the dispensing opening of the beverage storage device when the beverage storage device is located in the device holding space.

10. Combination according to the previous claim, wherein the housing of the beverage storage device comprises a register protrusion or defines a register recess (14) and the transport device comprises or defines the other (54), wherein the dimensions of the register protrusion and the register recess match and, when beverage storage device is placed in the device holding space, the register recess engages the register protrusion, in particular the register recess and the register protrusion connecting the transport device and the beverage storage device to each other, more in particular interlocking the transport device and the beverage storage device to each other, wherein the register protrusion is a rail and the register recess is configured to slide over the rail and wherein the beverage storage device is slid into the device holding space of the transport device along the rail. 15 20 25 30
11. Combination according to the previous claim, wherein the register protrusion is a rail and the register recess is configured to slide over the rail and wherein the beverage storage device is slid into the device holding space of the transport device along the rail. 35
12. Combination according to any of the preceding claims 10-11, wherein at least one wall of the transport housing defines a cooling cavity (70) configured to accommodate a cooling component (72) and/or wherein any of the front wall, the rear wall, the left side wall, the right side wall, the bottom wall, and the top wall of the beverage storage device defines a cooling cavity configured to accommodate a cooling component, in particular the cooling component being an ice pack or cool pack. 40 45 50
13. Combination according to any of the preceding claims 10-12, wherein an entry communication lid (662) is provided at the entry communication opening, in particular the entry communication lid being resiliently and pivotably connected to the transport housing and configured to close off the entry communication opening. 55

14. Combination according to any of the preceding claims 10-13, wherein at least one rolling element, such as a wheel (80), and a handle (82) is connected to the transport housing and/or to the beverage storage device, wherein the transport device and/or beverage storage device is configured to be used as a trolley suitcase.

15. Combination according to any of the preceding claims 10-14, wherein the slanted lateral axis ensures an increment in the inclination of the longitudinal axis of the beverage container during transport.

Fig. 1



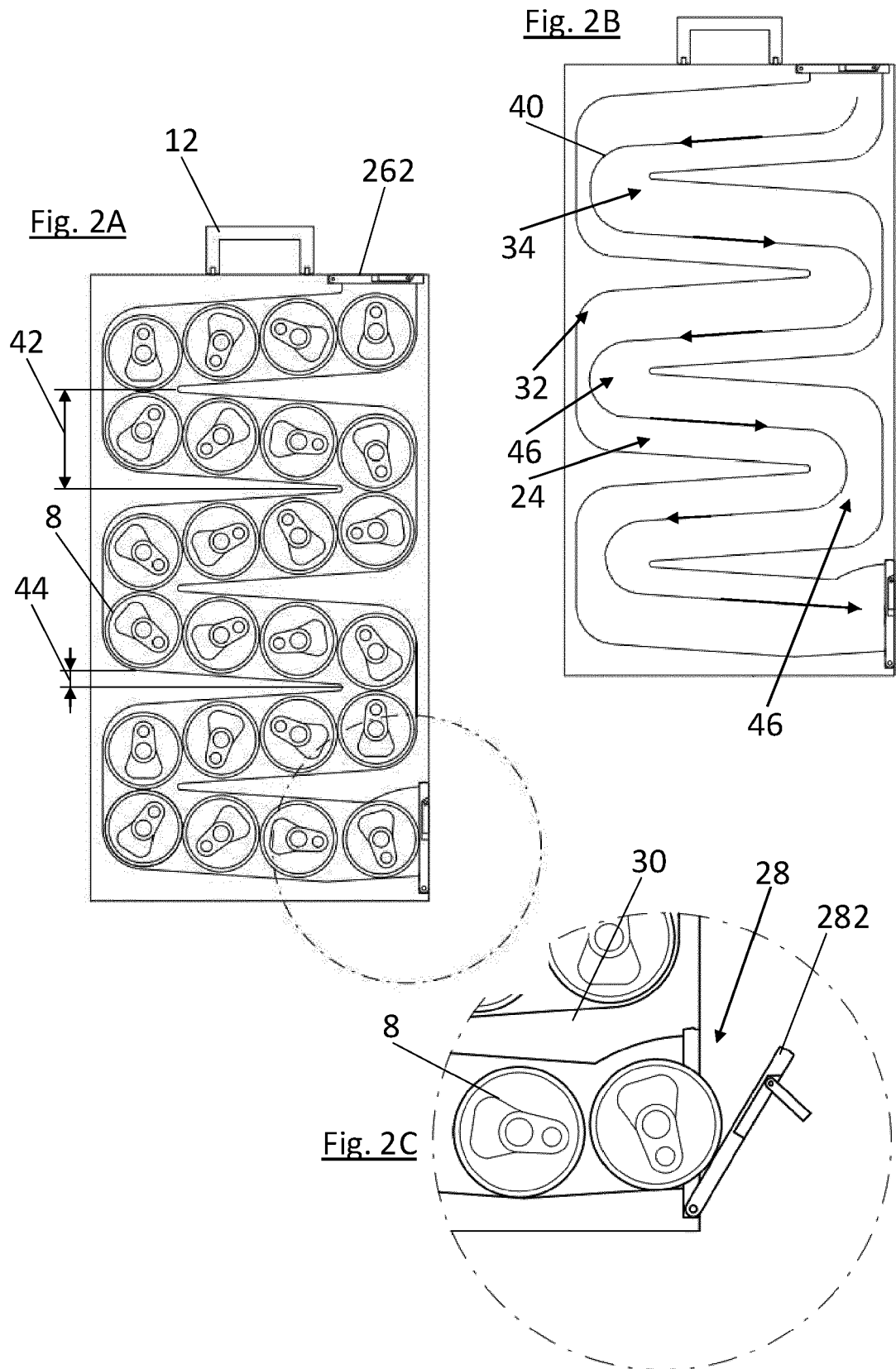


Fig. 3

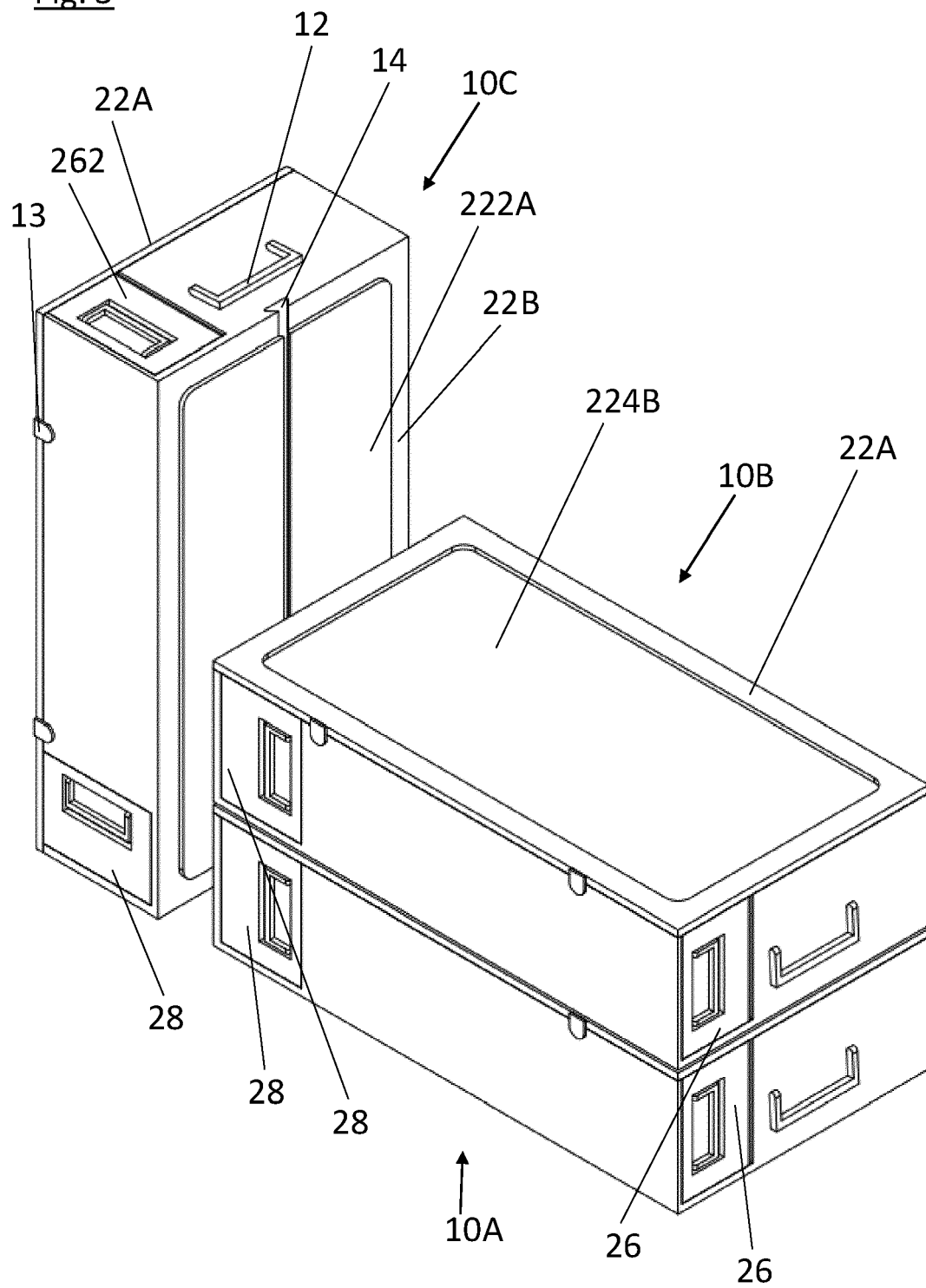


Fig. 4

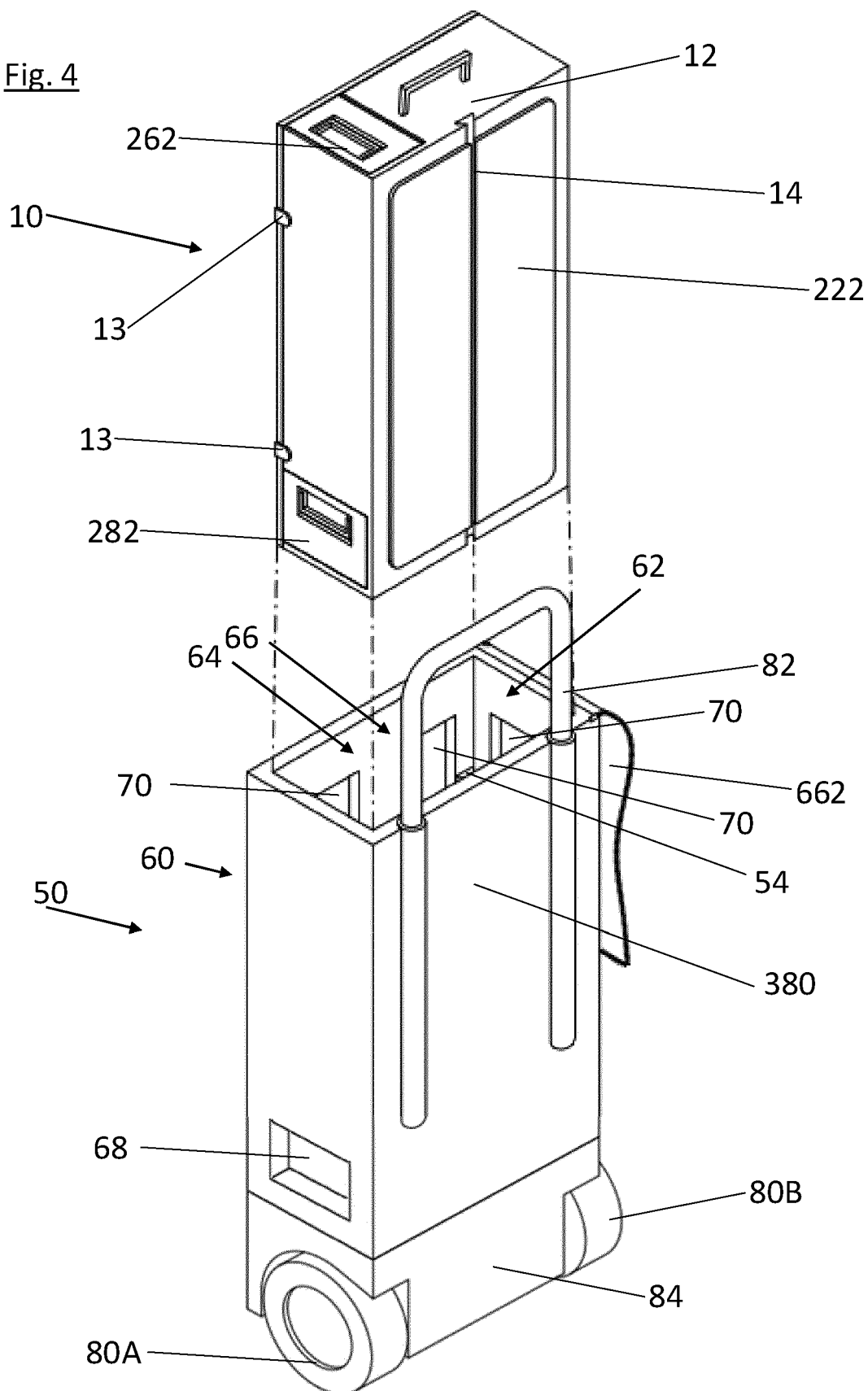


Fig. 5A

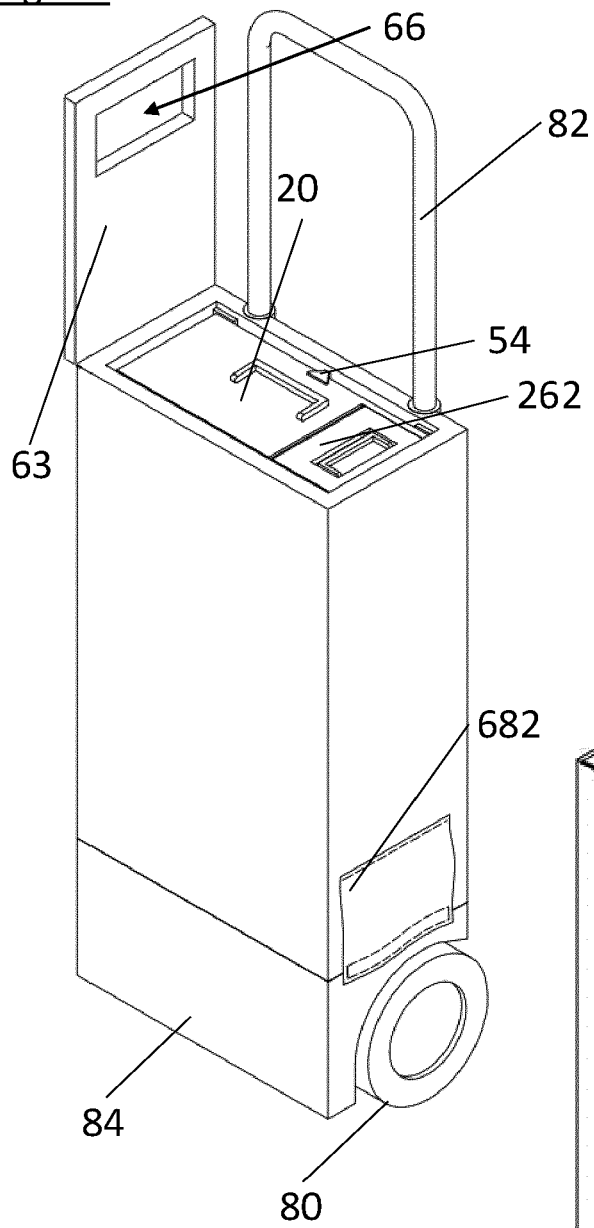


Fig. 5B

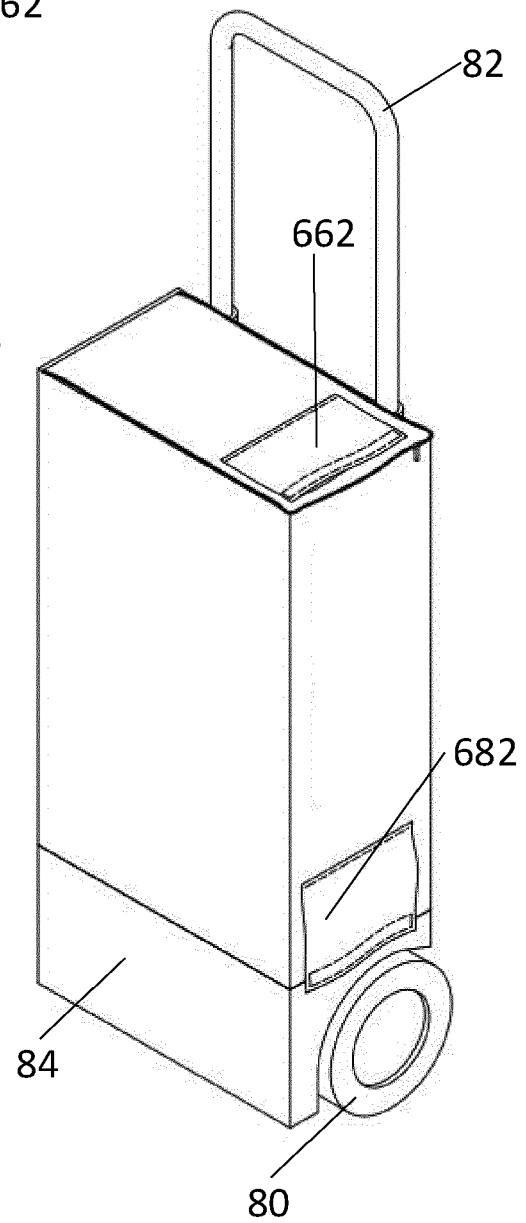
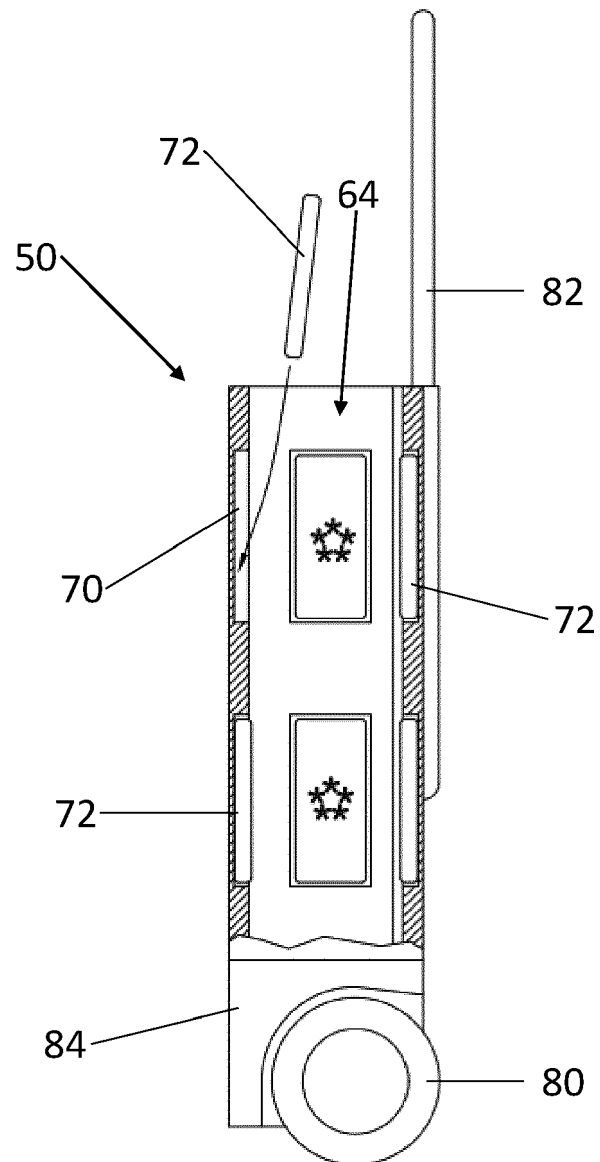


Fig. 6



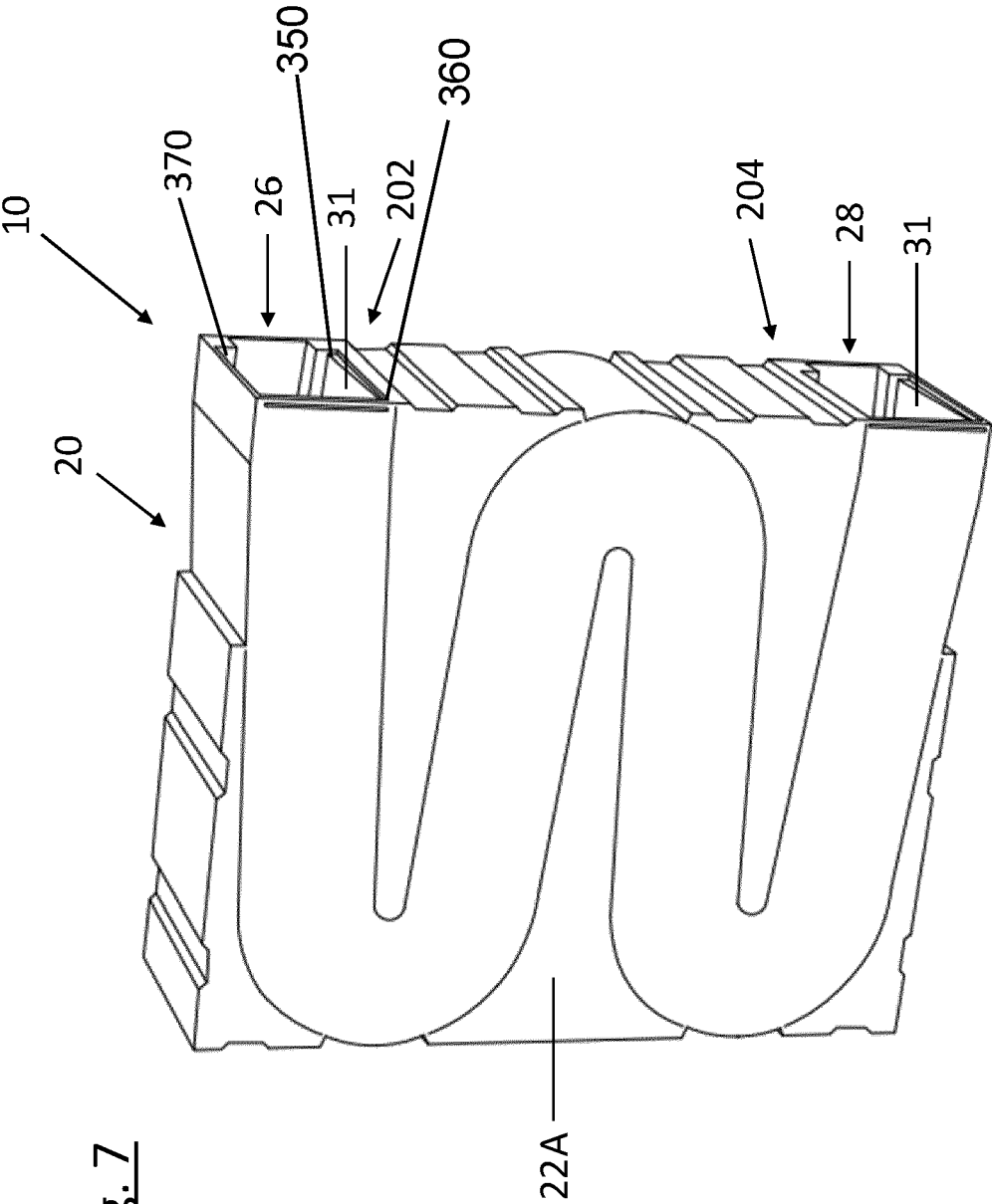


Fig. 7

Fig. 8B

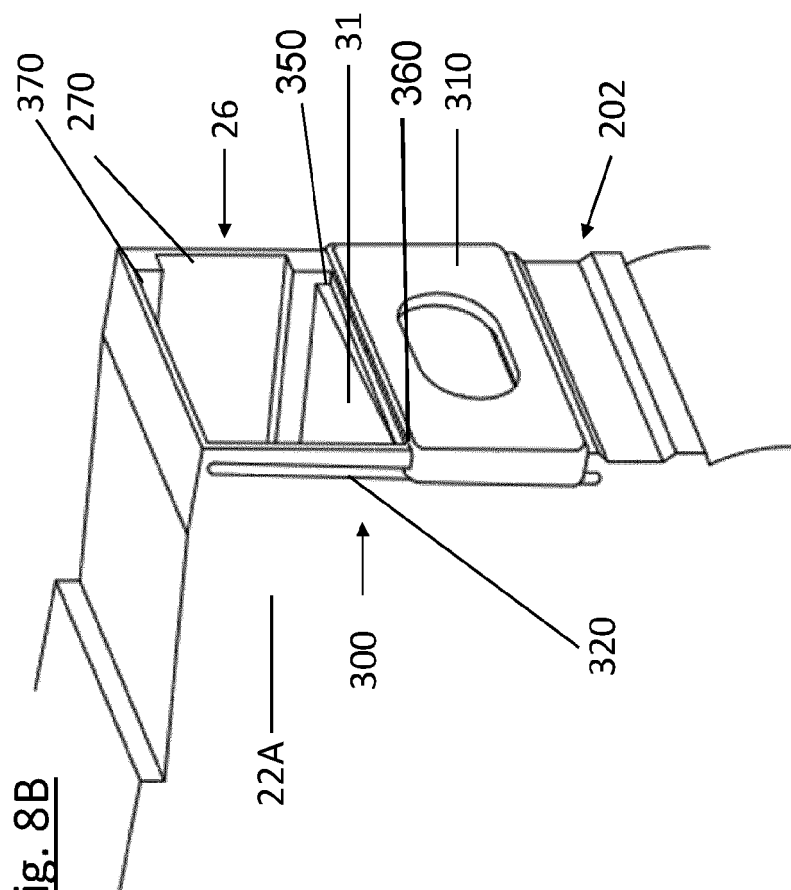
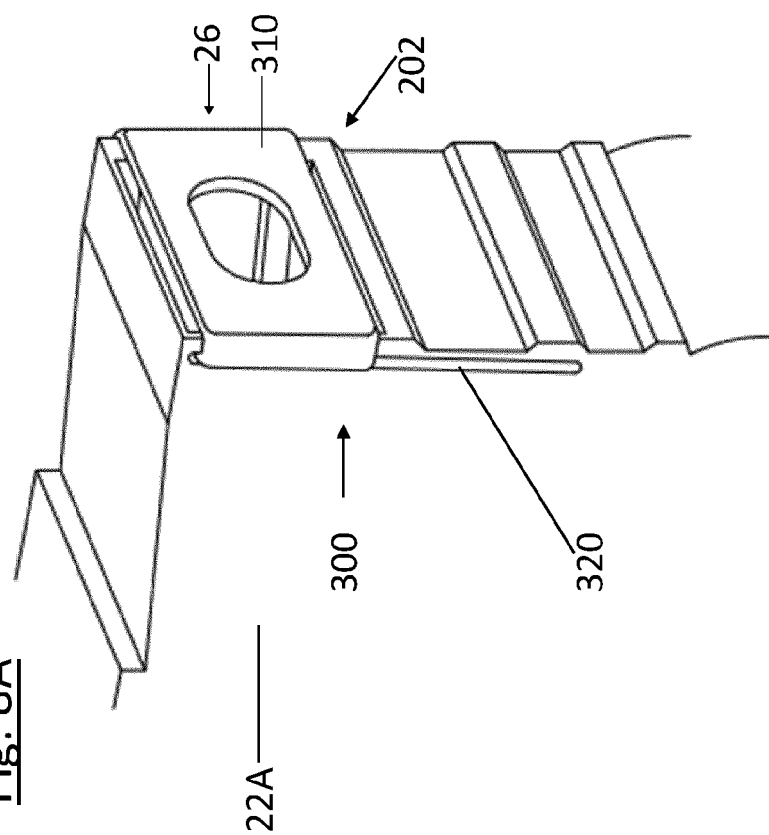
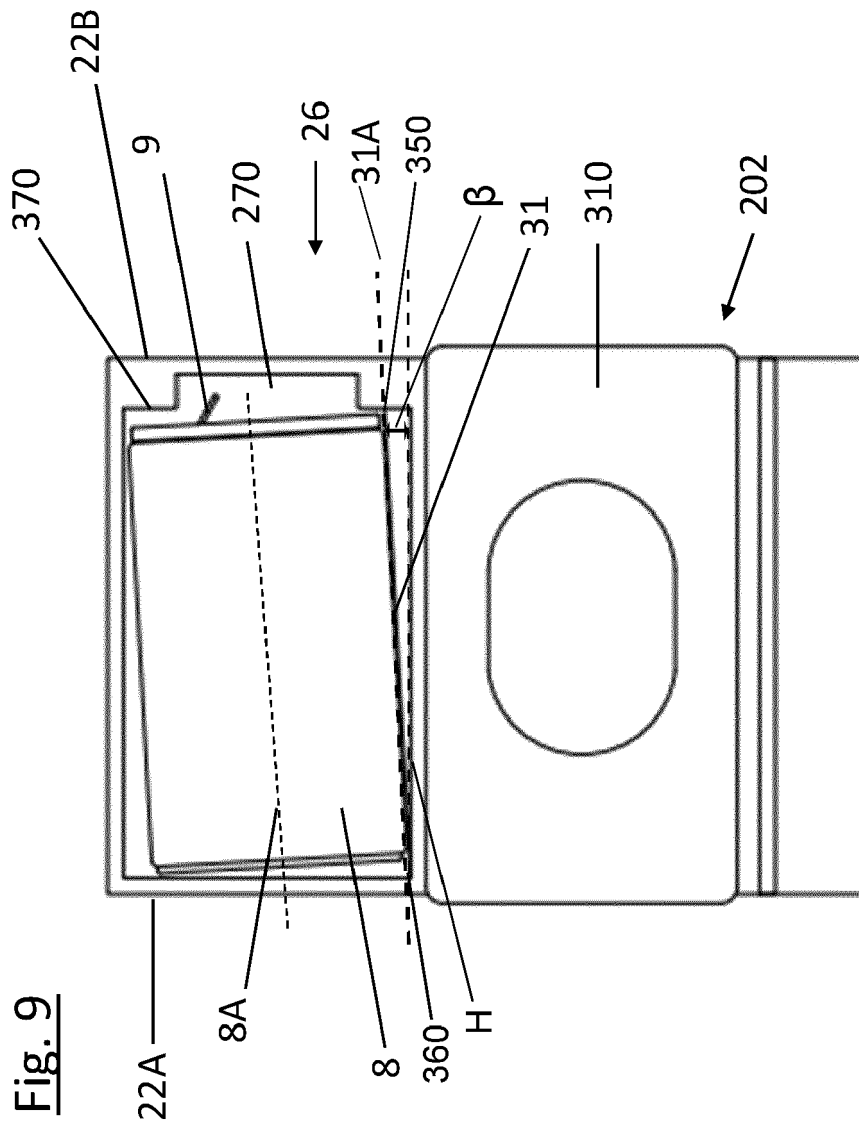


Fig. 8A





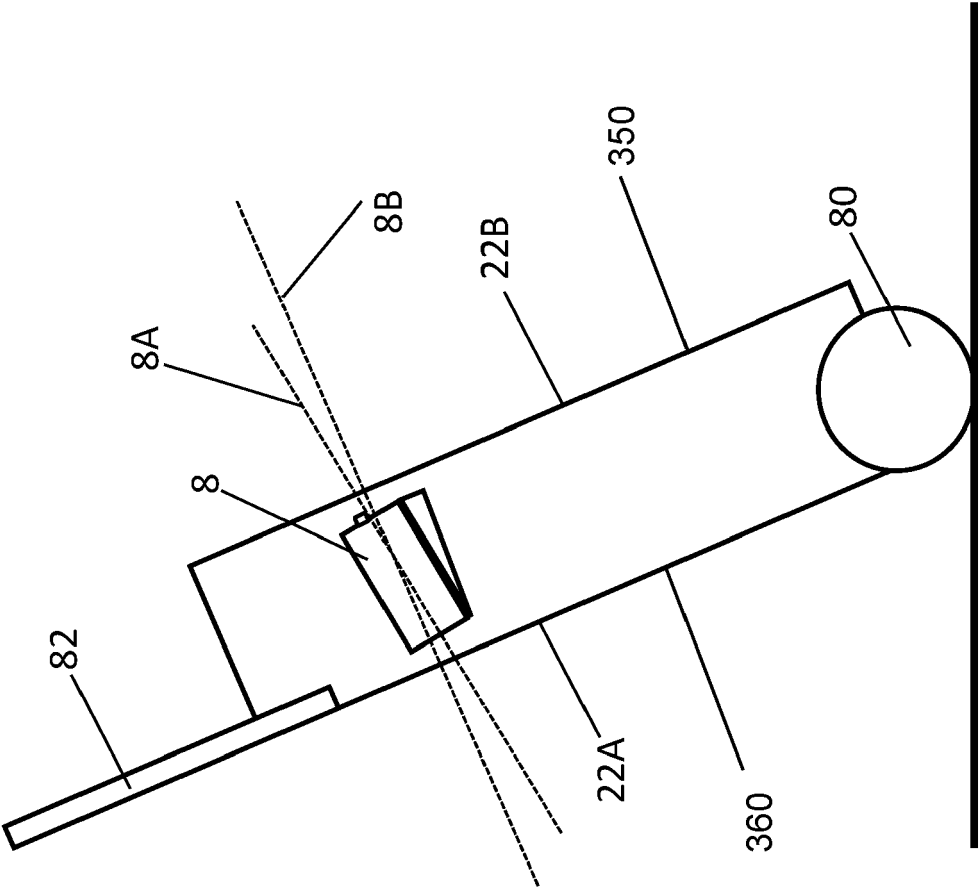


Fig. 10



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Application Number

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Place of search

The Hague

Date of completion of the search

27 November 2023

Examiner

van de Beek-Duijker

CATEGORY OF CITED DOCUMENTS

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