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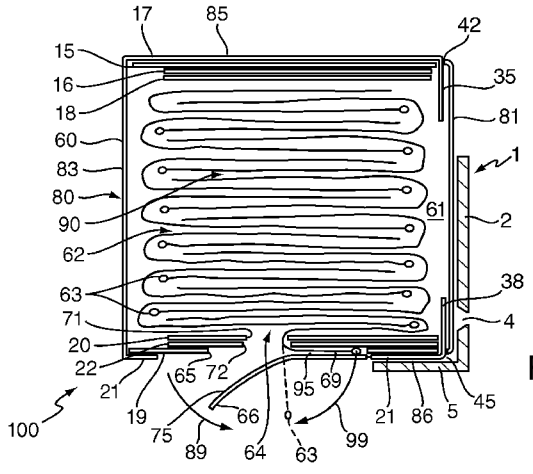

FIG. 8

(57) Abstract: The present invention relates to the dispensing of gloves from a dispenser. A glove dispensing system (100) for dispensing gloves (62) cuff first comprises a glove-filled card box container (80) formed of card material that is held in a holder (1) for mounting on a vertical support. The card may be any suitable sheet material, for example, stiff paper, cardboard or plastic sheet material. The container has an internal volume (61), a plurality of sides including a downwards facing dispensing side (86), the dispensing side having a plurality of layers (19 - 22) including a first layer (22) and a second layer (21), the first layer being relatively inside the second layer. A dispensing aperture (64) is provided in the first layer (22) through which, in use, gloves (62) are dispensed. A removable cover (75) is provided in the second layer (21), the cover extends over the dispensing aperture (64) prior to dispensing of gloves and which when removed permits the dispensing of gloves through the dispensing aperture. The cover (75) has dimensions that extend beyond the bounds of the dispensing aperture (64) and the container (80) comprises a spacer layer (19) between the first layer (22) and the second layer (21) so that a gap (95) is provided beneath the removable cover (75) adjacent the dispensing aperture (64) in which the cuff (69) of the first glove to be dispensed is held prior to removal of the cover. When the cover (75) is removed, the dispensing aperture (64) is free to dispense gloves (62) and is oriented with the dispensing aperture facing downwards so that, in use with the holder mounted to the support, the cuff of the glove next to be dispensed hangs through the dispensing aperture and away from the container.

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Glove Dispenser

BACKGROUND

a. Field of the Invention

The present invention relates to the dispensing of gloves from a dispenser.

b. Related Art

The control of infection of patients in hospitals, clinics, and doctors' surgeries has become an ever more pressing concern with the rise of infectious bacteria resistant to multiple antibiotics, in particular methicillin-resistant staphylococcus aureus (MRSA). In the United Kingdom alone there are thought to be about 5,000 deaths a year from infections caught in hospitals but some experts believe the number could be as high as 20,000.

Research has shown that high levels of MRSA and C. dificile are present on everyday items in hospitals. Samples taken from an intensive care unit at a London hospital found MRSA on charts, bins, pens, medical notes, phones and computer keyboards. There was also MRSA present on staff aprons and hands. The most common route for MRSA infection is between patients or via a doctor or nurse. Hospital staff can spread MRSA by using such items after having contact with patients.

Research has also shown that if someone has MRSA on their hands, the bacteria would be left on the next four surfaces touched by that person. Once MRSA is on an item it will remain there for up to 80 days unless that item is cleaned. C. dificile will remain active on surfaces much longer than that.

Most gloves used in hospitals and clinics are examination gloves, and these are used in large numbers such gloves are supplied not in individual sterile packages, but in relatively inexpensive cardboard dispensing boxes. Use of these disposable medical gloves can help prevent cross-contamination, but a problem arises if external parts of the glove are touched by a person prior to or during donning of the glove. Such external parts can then become contaminated prior to use.

US 4,844,293 discloses a glove dispensing system where a package of gloves is placed in an outer container, and gloves are dispensed through registering apertures in the package and the outer container. The cuffs of the gloves are not directly accessible to the user.

This arrangement encourages users to touch a glove only by the cuff and so minimise the risk of contamination, but at the cost of increased mechanical complexity and the need to apply an adhesive to the otherwise pristine external surface of the glove.

Most gloves used in hospitals and clinics are examination gloves, and these are used in large numbers such gloves are supplied not in individual sterile packages, but in relatively inexpensive cardboard dispensing boxes. One way of controlling contamination on such examination gloves is disclosed in patent document US 5,816,440. In this disclosure, gloves are packaged with over-folded cuffs within a box having a dispensing aperture. The fingers of each glove are looped partially or interfolded around the cuff of the subsequent glove so that as each glove is pulled from the dispensing aperture, the cuff of the next glove is pulled out of the aperture to make it easy for a user to get hold of the over-folded cuff of the next glove. To avoid users having to reach inside the dispensing aperture to get hold of the first glove to be dispensed, the first glove is packaged with the cuff already extending from the dispensing aperture. To prevent contamination of this first glove, the box is supplied in an air-tight cover that is removed prior to use by spreading apart a pair of sealing tabs. With such an arrangement, there is the

possibility that the first glove will become contaminated during the process of removing the cover, or that the protruding glove cuff will subsequently become contaminated prior to being dispensed from the box. In US 5,816,440 this possibility is reduced by over folding of the cuffs so that the external surface of the cuffs is protected by the exposed inner surface.

Over-folding of cuffs is, however, inconvenient. Apart from the several additional manufacturing steps entailed by this arrangement, the combination of cuff over-folding and interfolding of neighbouring gloves creates voids within the stack of interfolded gloves and so reduces the number of gloves which can be packed in a given volume. Furthermore, the cuff of the next glove may not always be reliably pulled from the aperture.

It is an object of the present invention to provide a more convenient and reliable arrangement for dispensing gloves in a medical or clinical environment or in any other environment where the control of hand-borne contamination is important.

SUMMARY OF THE INVENTION

According to a first aspect of the invention, there is provided a card box container for dispensing gloves, the container comprising:

- an internal volume for holding a plurality of gloves to be dispensed;
- a plurality of sides including a dispensing side, the dispensing side having a plurality of layers of card including a first layer and a second layer, the first layer being relatively inside the second layer;
- an internal dispensing aperture aligned with a dispensing passage through said plurality of layers of card by which, in use, said gloves are dispensed;
- an external removable cover in the dispensing side, the cover extending over the dispensing aperture prior to dispensing of gloves through the dispensing aperture and which when removed opens the dispensing passage to permit the

dispensing of gloves through the dispensing aperture;

wherein the cover has dimensions that extend beyond the bounds of the dispensing aperture and said plurality of layers of card comprise at least one spacer layer providing in said passage a spacer aperture between the dispensing aperture and the removable cover so that a gap is provided in the region of the spacer aperture beneath the removable cover and adjacent the dispensing aperture.

According to a second aspect of the invention, there is provided a card box container for dispensing gloves, the container comprising:

- an internal volume for holding a plurality of gloves to be dispensed;
- a plurality of sides including a dispensing side, the dispensing side having a plurality of layers of card including a first innermost layer and an adjacent second innermost layer, the first innermost layer being relatively inside the second innermost layer;
- an internal dispensing aperture aligned with a dispensing passage through said plurality of layers of card by which, in use, said gloves are dispensed;
- an external removable cover in the dispensing side, external to both the first and second innermost layers, the cover extending over the dispensing aperture prior to dispensing of gloves through the dispensing aperture and which when removed opens the dispensing passage to permit the dispensing of gloves through the dispensing aperture;

wherein the first innermost layer has a first dispensing cut-out therein and the second innermost layer has a second dispensing cut-out therein, said cut-outs thereby defining the dimensions of the dispensing aperture, and the first dispensing cut-out being smaller than the second dispensing cut-out.

An advantage of this arrangement is that this allows the second innermost layer to provide support to the first innermost layer against deformation of the first innermost layer during dispensing of gloves.

In a preferred embodiment of the invention, the first and second dispensing cut-outs are aligned with each other and therefore, the edge or boundary of the first dispensing cut-out lies substantially within the bounds of the edge or boundary of the second dispensing cut-out relative to the dispensing passage.

The card may be any suitable sheet material, for example, stiff paper, cardboard, plastic sheet material, etc.

When loaded with gloves, the cuff of the first glove to be dispensed then extends through the dispensing aperture, being covered over by the removable cover. The gap has sufficient dimensions to accommodate the cuff of this glove protruding through the dispensing aperture prior to removal of the removable cover.

In a preferred embodiment of the invention, the removable cover is provided in the second layer. In this case, the spacer layer would be a card layer between the dispensing aperture and second layer. It would, however, alternatively be possible to provide the removable cover in the form of a tear-off layer, for example a plastic pull tab, on an external surface of the dispensing side. In this case, the spacer layer could be any card layer between the dispensing aperture and the removable cover.

There may also be more than one such spacer layer, which would provide the advantage of increasing the width of the gap and hence the amount of volume for folding a cuff of the first glove to be dispensed.

The dispensing aperture may be in the first layer. In a preferred embodiment of the invention, the dispensing aperture is two adjacent layers; the first innermost layer and an adjacent layer. It would, however, alternatively be possible to provide the removable cover in the form of a slot in a membrane, for example a plastic film layer, held in place by one or more of said plurality of layers of card. In this case, the spacer layer could be the first layer.

However, in a preferred embodiment of the invention, the spacer layer lies between the first layer and the second layer, the inner layer is an innermost layer that forms an inner surface of the internal volume and the second layer is an outermost layer that forms an external surface of the container.

The removable cover may have has a finger grip feature that enables a user to grip and pull the cover in a pull direction to remove the cover from the dispensing aperture, which is preferably oblong in a direction transverse to the pull direction.

In a preferred embodiment of the invention, adjoining the dispensing side of the card box container are four adjacent sides, these adjacent sides including a plurality of flaps folded over one another to form the layers of the dispensing side. At least one of the flaps may then have a cut-out that defines the dispensing aperture, and with at least one of these flaps having the removable cover in the form of a removable panel in this flap.

In a preferred embodiment, at least one of the flaps is an intervening flap the thickness of which provides the spacer. The intervening flap may have a cut-out which prior to removal of the removable cover is overhung by the removable panel.

According to a third aspect of the invention, there is provided a glove dispenser, the dispenser comprising a card box container, the container being according to the first aspect of the invention or according to the second aspect of the invention and having a plurality of gloves held within the internal volume of the container, wherein:

- prior to removal of the removable cover, the cuff of the first glove to be dispensed extends through the dispensing aperture and lies adjacent the dispensing aperture in the gap provided between beneath the removable cover; and

- said gloves are interfolded for cuff-first dispensing through the dispensing aperture such that the removal of the cover, a glove pulled cuff-first from the dispensing aperture causes the cuff of the next glove to be dispensed to extend through the dispensing aperture.

The cuff of the first glove to be dispensed may be adhered to the removable cover so that the cuff of the first glove is pulled away from the container as the cover is removed.

The gloves held within the internal volume of the card box container may be interfolded in a stack of gloves with thumbs of each glove being positioned on the same side of the stack.

The gloves may be for use in a medical or clinical environment, for example medical examination gloves

According to a fourth aspect of the invention, there is provided a glove dispensing system for dispensing gloves cuff first, comprising a glove dispenser, the glove dispenser being according to the second aspect of the invention, and a holder for mounting to a vertically extending support, the holder being arranged to receive and hold the container such that after removal of the cover the dispensing aperture is free to dispense gloves and is oriented with the dispensing aperture facing downwards so that, in use with the holder mounted to said support, the cuff of the glove next to be dispensed hangs through the dispensing aperture and away from the container.

A main benefit of the invention is that the glove dispenser can be placed within the holder prior to opening of the container by removing the cover. This keeps gloves inside the container clean or sterile until such time as the first glove is needed. The cover may then be removed without having to touch any part of the container adjacent the dispensing aperture, and without having to touch the first glove itself,

the cuff of which then automatically falls downwards ready for cuff-first dispensing.

The holder may comprise a mounting bracket and on opposite lateral sides of the bracket a pair of supports that extend away from said bracket surface and between which is held the container. Each of the supports has extending from the bracket a vertically extending member, this vertically extending member laterally positioning the container. Each vertically extending member may have at a lower end thereof a horizontally extending member, this horizontally extending member vertically positioning the container in the holder. The horizontally extending members are then separated by a gap such that the supports do not interfere with the dispensing of gloves from the dispensing aperture.

Each vertically extending member preferably has a vertically extending side section and a vertically extending retaining section. The side section then extends between the bracket and the retaining section. The arrangement is such that the lateral positioning of the container in the holder is provided by the fit of the container between these retaining sections and the bracket and the fit of the container between the two side sections.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be further described, by way of example only, and with reference to the accompanying drawings, in which:

Figure 1 is a front perspective view of a shows a preferred embodiment of a holder for mounting to a vertically extending support for use in a glove dispensing system according to a preferred embodiment of the invention;

Figure 2 is a view from above of the holder of Figure 1;

Figure 3 is a rear perspective view of the holder of Figure 1;

Figure 4 is a left side view of the holder of Figure 1;

Figure 5 shows a plan view of sheet card cut and punched out prior to formation into a card box container for dispensing gloves according to a preferred embodiment of the invention;

Figure 6 is a perspective view from below of a glove dispensing system according to a preferred embodiment of the invention, formed from the holder of Figure 1 in which is seated a glove filled box formed from the sheet card of Figure 2;

Figure 7 is a view of the glove dispensing system of Figure 6, after a cover in a bottom surface of the box has been removed to release the cuff of the first glove to be dispensed from the container;

Figure 8 is a cross-section through the glove dispensing system, taken along line VIII-VIII of Figure 7, showing schematically how the removable cover is removed from the container to release the cuff of the first cuff, and how gloves are interfolded within the container for cuff-first dispensing of subsequent gloves; and

Figure 9 is a perspective view of the glove dispensing system of Figure 7, showing how the cuff of the glove to be dispensed hangs freely downwards from a lower surface of the container.

DETAILED DESCRIPTION

Figures 1 to 4 show a wall-mountable holder 1 for a container for dispensing gloves, to be discussed in more detail below. The holder 1 has a on a rear side a flat bracket 2 with three through holes 4 by which the holder may be mounted to a wall (not shown) or other vertical supporting surface.

On opposite lateral sides of the bracket is a left support 6 and a right support 6'. The supports 6, 6' are mirror images of reach other. Each support extends perpendicularly away from the mounting bracket 2. The brackets extend generally parallel with each other and present an open top 8 for receiving a card box container for dispensing gloves.

Each support has a vertically extending side panel 9, 9' that extends perpendicularly from the bracket 2. The lowermost portions of the bracket 2 and sides 9, 9' are spanned by a supporting ledge having three portions, a left portion 3, a right portion 3' and a rear portion 5. In use, the ledge portions 3, 3', 5 support a card box container received in the holder 1. The ledge portions 3, 3' 5 each extend perpendicularly from the bracket 2 and side panels 9, 9' on three sides inwards towards of a central lower opening 5 in the holder 1. A forwards end of the left ledge portion 3 terminates at a left front edge 7 and a forwards end of the right ledge portion 3' terminates at a right left front edge 7'. Each front edge 7, '7 is joined perpendicularly to the adjacent side 9, 9' and to the adjacent ledge 3, 3' and is therefore parallel with the bracket 2. The left and right edges 7, 7' are less than half the height of the bracket 2, preferably about one-third the height of the bracket, so that a container may more easily be inserted into the open top 8 of the holder. As result, the left and right side panels 9, 9' each have an upper edge 55 that slopes downwards from the bracket 2 towards the corresponding front edge 7, 7'.

The left support 6 and a right support 6' are therefore formed from the

corresponding side panels 9, 9', left and right ledge portions 3, 3' and left and right edges 7, 7'.

Reference is now made also to Figure 5 which shows plan view of sheet card 10 cut and punched out so that this can be folded over and glued together to form a container for a glove dispenser. The card is an integral sheet of material having twelve panels 11 – 22 separated by eleven fold lines 23 – 33. In addition, the card has six barbed tabs 34-39 and six corresponding slots 41-46 plus one plain tab 40 to which a patch of adhesive 47 is applied. Each tab 34-40 is separated from a panel by a corresponding fold line 48-54.

The card 10 is assembled to form a box container 60 according to a preferred embodiment of the invention, as shown in Figures 6 to 9. An internal volume 61 of the container 60 is filled with gloves, which in this example are disposable medical inspection gloves 62, to create a glove dispenser 80 according to a preferred embodiment of the invention.

The glove dispenser 80 is inserted into the open top 8 of the holder 1 to form a glove dispensing system 100 according to a preferred embodiment of the invention.

As shown in Figure 5, the card 10 has a number of cut-outs including a first elongate dispensing cut-out 72 in panel 22 and a second elongate dispensing cut-out 71 in panel 20 for an elongate dispensing aperture 64. The innermost dispensing cut-out 71 is slightly smaller than the outermost dispensing cut-out 72. When aligned with each other, the innermost dispensing cut-out is fully within the bounds of the second dispensing aperture. A third spacer cut-out 73 in panel 19 for a spacer aperture 65 and a finger grip cut-out 74 in panel 21 to provide finger access to a grip feature 66 in a removable cover 75 provided in a portion of the panel 21. The removable cover 75 is held to the rest of panel 21 by a perforation 67 in the card material.

The panels 11 – 22 are folded in the following manner. Panels 11 – 14 form, respectively, back, left, front and right side sides 81 - 84 of the container 60. Panels 15 – 18 are folded one over another to form a multilayered top side 85 with panel 18 being innermost, then panel 16 and then panel 15 with panel 17 being outermost. The barbed tab 35 of panel 17 inserts in the slot 42 along the fold line 26 between panels 15 and 11.

Panels 19 – 22 are folded one over another to form a multilayered bottom side 86 with panel 20 being innermost, then panel 22 and then panel 19 with panel 21 being outermost. The barbed tab 38 of panel 21 inserts in the slot 45 along the fold line 30 between panels 19 and 11.

As can be seen from Figure 8, the two innermost panels 20, 22 in the bottom side 86 of the container have the two dispensing cut-outs 71, 72, which are aligned with each other when the panels 20, 22 are folded over one another. The innermost edges of the two dispensing cut-outs 71, 72 will define the size of the dispensing aperture 64. It is preferred if these innermost edges are provided by the smaller, inner cut-out 71. When a glove is dispensed by pulling the glove out of the dispensing aperture 64 it will drag and pull on the edges of the dispensing aperture. Therefore, if this edge is inside the slightly larger outer dispensing cut-out 72, the second innermost panel 22 will provide support to the innermost panel 20 as the dispensed glove tugs on the edges of the smaller, innermost dispensing aperture. This arrangement therefore helps to prevent deformation such as distortion and/or tearing of the two dispensing cut-outs 71, 72.

After the two innermost panels 20, 22, the next outmost panel 19 has the spacer cut-out 73 for the spacer aperture 65, which has larger dimensions than the dispensing cut-outs 71, 72 and which when the panel 19 is folded over the two inner panels 20, 22 lies fully outside the bounds of the dispensing aperture 64. The outermost panel 21 having the finger grip cut-out 74 and perforated removable

cover 75 is folded over the inner three panels 19, 20, 22. The removable cover has dimensions that are aligned with those of the spacer cut-out 73, except for a projecting portion of the cover 75 which forms the grip feature 66. The cover 75 is formed in a central portion of the dispensing side 86 and has dimensions that overlap fully the edge of the dispensing aperture 64. The grip feature 66 and finger grip cut-out 74 lie outside the bounds of the spacer cut-out so that there is no gap in the bottom side 86 of the container leading to the dispensing aperture 64. This helps to prevent any contamination getting into the dispensing aperture prior to removal of the cover 75.

The thickness of the card provides a clear gap 95 between the cover 75 of the outermost panel 21 and the nearest inner panel 20 forming the dispensing aperture 64. The gap 95 extends between the removable cover 75 and a surrounding peripheral edge 96 of the dispensing aperture 64, that is recessed within an aperture in the outermost layer 19 of the bottom side 86 of the container 60 formed by the removal of the cover 75. The panel 19 therefore acts as a spacer that spaces apart the removable cover 75 from the dispensing aperture 64 in order to provide a gap 95 between the removable cover and surrounding edges of the dispensing aperture 64.

The relative alignment of the panels is shown schematically in Figure 6 with dashed and dotted lines superimposed on the cover 75 which is illustrated still fixed to the remainder of the container by the perforations 67. The removable panel 75 is fully accessible from beneath the front side 83 of the container 60, in the clear space between the left and right edges 7, 7' of the supports 6, 6'. The left and right ledges 3, 3' have each a semicircular recess 88, 88' the bounds of which extend beyond those of the removable cover 75 so that the cover is in no way obscured by the holder 2.

After loading a fresh box of gloves 80 in the holder 2, a user then grips the grip features and pulls down and away as indicated in Figure 8 by arrow 89 to tear the

removable cover away and expose the dispensing aperture 64 and a cuff 69 of the first glove 62 to be dispensed. This cuff 69 is packaged protruding from the dispensing aperture 64 and is held inside the gap 95 between the cover 75 and the nearest inner panel 20. As soon as the cover 75 is removed, the cuff 69 drops down as indicated by arrow 99. This may be aided by a small amount of tacky adhesive (not shown) between the cover 75 and the cuff 69.

To help ensure that the cuff 69 is not touched by a person during this procedure, the cuff is packed folded on the far side of the dispensing aperture 64 relative to the grip feature 66. The glove cuff 69 therefore does not start to fall until the person's hand, holding the grip feature, has already moved downwards and away from the dispensing feature. Preferable, the arrangement is such that the glove does not drop 99 until the cover 75 is substantially or fully removed. This location of the packed cuff is shown schematically in Figure 8 by diagonals lines 92.

Figure 8 illustrates the gloves 62 schematically with each glove being represented by a single line and the end of the cuff of each glove 62, which will normally be an end roll portion, represented by a circle 63. So that the arrangement can be more clearly seen, there are spaces between each glove 62, but in fact the gloves would ideally be tightly packed in a full container 80.

The gloves are interfolded in a stack 90 of gloves. This provides a number of benefits including reducing the lateral size of the container 60 to an approximately square outline as viewed from above. The gloves 62 are stacked preferably with all the thumbs being on the right side of the stack 90 when the stack is viewed from the front of the container. The interfolding of gloves 62 is such that each glove 62 is dispensed by the cuff 63. The removal of a glove 62 by pulling on the cuff roll portion 63 delivers the next cuff roll portion 63 through the dispensing aperture 64 to the same dispense position as for the preceding glove and cuff roll portion 63. This action is due to the friction between the gloves.

The gloves 62 can alternatively be positioned in the stack 90 of interfolded gloves with all the thumbs on the left of the container.

These configurations can be combined with a method of donning gloves as described hereafter.

If the gloves 62 are packed with all the thumbs on the right of the stack 90 when the stack is viewed from the front of the container 60 the first glove is taken from the stack by grasping the cuff roll 63 with the left hand and by pulling it out of the container, and then proceeding to don this glove on the right hand. The second glove 62 is then pulled from the container 60 by grasping the cuff roll 63 with the gloved right hand, and then the glove is pulled onto the left hand.

Alternatively with the gloves 62 stacked with all the thumbs on the left when the stack 90 is viewed from the front end of the container 60 the first glove is taken from the stack by grasping the cuff roll 63 with the right hand and by pulling it out of the container, and then proceeding to don this glove on the left hand. The second glove 62 is then pulled from the container 60 by grasping the cuff roll 63 with the gloved left hand, and then the glove is pulled onto the right hand.

By stacking and donning gloves in this way, contact by fingers of the finger or palm portions of the glove is avoided, thereby reducing or eliminating contamination of finger or palm portion of the donned gloves.

With all the gloves in the stack oriented in the same way, the gloves will be dispensed in a consistent and known orientation, permitting the user to don the gloves in the same way each time the dispenser is used. Donning the gloves by the method described means that the gloves do not have to be turned around or re-oriented before being pulled onto each hand. For example, if the thumbs of the gloves in the stack are on the left, then if a first glove is pulled from the container using the right hand, it may be pulled onto the left hand without rotating the glove if

the left hand is positioned palm up. The second glove is then removed from the container using this left hand, and the glove may be pulled onto the right hand without rotating the glove if the right hand is positioned palm down.

However, it will be appreciated that if the gloves are packed with all the thumbs on the right of the stack the first glove may be dispensed using a right hand, with the second glove removed from the container using the resultant gloved left hand. Likewise, if the gloves are packed with all the thumbs on the left of the stack the first glove may also be dispensed using a left hand, with the second glove removed from the container using the resultant gloved right hand.

Importantly, by stacking and donning gloves in this way, contact by bare fingers of the finger or palm portions of the glove is avoided, thereby reducing or eliminating contamination of finger or palm portion of the donned gloves.

If a person dispensed the gloves in a different way, for example by dispensing the first glove using their right hand and putting it on their left hand, and then also dispensing the second glove using their right hand, this glove would have to be transferred to their left hand before being pulled onto their right hand. This would result in any contamination being passed from the bare fingers of the right hand to the cuff of the second glove and then to the fingers of the glove on the left hand. This contamination may then be passed to a patient during an examination for example.

Therefore, in order that a user of the dispenser removes and dons the gloves in the desired manner to avoid contamination, it may be advantageous to provide instructions setting out the correct dispensing of the gloves. These instructions may be printed on the front face of the container.

Alternatively, the instructions may be printed on a notice or poster or similar which may be displayed near the container.

In this example, the gloves are disposable ambidextrous medical examination gloves made from latex, nitrile or vinyl material that is typically 100 µm to 125 µm thick and about 240 mm long from finger tip to cuff edge.

The holder 1 in this example has external dimensions of 150.5 mm in depth (D), 131 mm in breadth (B) and 93 mm in height (H).

The card 10 in this example has a thickness of between about 0.5 mm to 1.0 mm, and preferably about 0.6 mm. The dimensions of the card 10 prior to folding are 520 mm long (L) and 380 mm wide (W). The card may be any suitable sheet material. In clinical environments, it may be preferred to use plastic sheet material, which can be easier to clean than stiff paper or cardboard material.

The container 60 in this example has external dimensions of 120 mm in width, 130 mm in depth and 100 mm in height. When packed with gloves 62 the filled container 80 can hold about 100 nitrile gloves or about 120 latex gloves.

The dispensing aperture 64 has innermost edges provided by the elongate innermost dispensing cut-out 71, which has maximum dimensions of 80 mm along a long axis and 19 mm along a short axis perpendicular to the long axis, with semicircular ends. The maximum dimensions of the outermost dispensing cut-out 72 should be between about 1 mm and 4 mm larger than those of the innermost dispensing cut-out 71, and in this example the maximum dimensions are 83 mm in length by 22 mm in width, providing a 1.5 mm nominal overlap of the innermost dispensing cut-out 71 by the outermost dispensing cut-out 72.

As shown in the drawings, the first and second innermost layers 20, 22 are hingedly attached to opposite side panels 12, 14 and with the elongate orientation of the cut-outs 71, 72 being transverse or substantially perpendicular to the junction with the side panels. The innermost layers 20, 22 are preferably not glued

together or otherwise attached to each other, and so are free to move relative to each other. Flexing of the dispensing aperture during dispensing of gloves therefore can cause some small relative movement between the two dispensing cut-outs, but as this is in the direction of a long axis of the elongate cut-outs, this will not restrict the width of the dispensing aperture.

The preferred arrangement described above has a number of advantages. First, the container can be formed entirely from cut and folded card held together by adhesive. There is no need for use of different materials, such as plastic film. This helps to keep production cost low. Second, because the removable cover is in a layer forming the dispensing side of the container, it is possible to reduce the possibility of contamination to the first glove to be dispensed without having to go to the inconvenience of over-folding the glove cuffs. This is because the holder supporting the container can be formed in such a way that this does not interfere with the removal of the cover. The cover can therefore be removed after the container has been placed in the holder.

Finally, because the dispensing aperture is defined by the edges of the innermost of four overlapping panels, the tugging load on the inmost panel 20 during dispensing of gloves is supported by all four overlapping panels. As each of these four panels 19 – 22 has a progressively larger cut-out from the inside to the outside, this load is transferred laterally outward through each panel 19 – 22, and finally to the ledge-like left, right and rear portions 3, 3', 5 of the underside of the wall mountable bracket 1.

The holder according to the invention therefore accepts and holds the container with the dispensing side lowermost ad without obscuring the removable cover itself. Removing of the cover on a downward facing side of the container naturally results in a person moving his hand downward and away from the dispensing aperture as the cover is pulled away thereby reducing the possibility that a person's hands will come into contact with the dispensing aperture or the glove

itself.

Avoiding over-folding of cuffs also improves friction between adjacent gloves inside the container and reduces voids within the container volume, thereby increasing the reliability of one glove pulling the next glove's cuff through the dispensing aperture, while at the same time increasing the number of gloves that may be packed into a container having a given volume.

Because the downward hanging cuff of the next glove to be dispensed is fully beneath the container and holder, this cuff is substantially protected from downward drifting dust or other contamination in the air above the glove dispenser.

Because the glove dispenser is mounted to a vertical supporting surface such as a wall, in the holder, the container also gains some protection from accidental contamination by the presence of the vertical supporting surface.

The invention therefore provides convenient and economical container for dispensing gloves, a glove dispenser based on such a container, and also a glove dispensing system having such a glove dispenser held by a hold for mounting to a vertically supporting surface.

It should be understood that the invention has been described above by way of example only and that modifications in detail may be made without departing from the scope of the invention as set out in the claims.

CLAIMS

1. A card box container for dispensing gloves, the container comprising:

- an internal volume for holding a plurality of gloves to be dispensed;
- a plurality of sides including a dispensing side, the dispensing side having a plurality of layers of card including a first layer and a second layer, the first layer being relatively inside the second layer;
- an internal dispensing aperture aligned with a dispensing passage through said plurality of layers of card by which, in use, said gloves are dispensed;
- an external removable cover in the dispensing side, the cover extending over the dispensing aperture prior to dispensing of gloves through the dispensing aperture and which when removed opens the dispensing passage to permit the dispensing of gloves through the dispensing aperture;

wherein the cover has dimensions that extend beyond the bounds of the dispensing aperture and said plurality of layers of card comprise at least one spacer layer providing in said passage a spacer aperture between the dispensing aperture and the removable cover so that a gap is provided in the region of the spacer aperture beneath the removable cover and adjacent the dispensing aperture.

2. A card box container as claimed in Claim 1, in which the removable cover is provided in the second layer.

3. A card box container as claimed in Claim 1, in which the removable cover is provided by a tear-off layer on an external surface of the dispensing side.

4. A card box container as claimed in any preceding claim, in which the dispensing aperture is in the first layer.

5. A card box container as claimed in any one of Claims 1 to 3, in which the dispensing aperture is a slot in a membrane held in place by one or more of said

plurality of layers of card.

6. A card box container as claimed in any preceding claim, in which the spacer layer lies between the first layer and the second layer.

7. A card box container as claimed in any preceding claim, in which the inner layer is an innermost layer that forms an inner surface of said internal volume.

8. A card box container as claimed in any preceding claim, in which the second layer is an outermost layer that forms an external surface of the container.

9. A card box container as claimed in any preceding claim, in which the removable cover has a finger grip feature that enables a user to grip and pull the cover in a pull direction to remove the cover from the dispensing aperture.

10. A card box container as claimed in Claim 9, in which the dispensing aperture is oblong in a direction transverse to the pull direction.

11. A card box container as claimed in any preceding claim, in which adjoining the dispensing side are four adjacent card sides, said adjacent side including a plurality of card flaps folded over one another to form the card layers of the dispensing side, at least one of said flaps having a cut-out that defines the dispensing aperture, and at least one of said flaps having said removable cover in the form of a removable panel in said flap.

12. A card box container as claimed in Claim 11, in which at least one of said flaps is an intervening flap the thickness of which provides the spacer layer.

13. A card box container as claimed in Claim 12, in which said intervening flap has a cut-out which prior to removal of the removable cover is overhung by the removable panel.

14. A card box container for dispensing gloves, the container comprising:

- an internal volume for holding a plurality of gloves to be dispensed;
- a plurality of sides including a dispensing side, the dispensing side having a plurality of layers of card including a first innermost layer and an adjacent second innermost layer, the first innermost layer being relatively inside the second innermost layer;
- an internal dispensing aperture aligned with a dispensing passage through said plurality of layers of card by which, in use, said gloves are dispensed;
- an external removable cover in the dispensing side, external to both the first and second innermost layers, the cover extending over the dispensing aperture prior to dispensing of gloves through the dispensing aperture and which when removed opens the dispensing passage to permit the dispensing of gloves through the dispensing aperture;

wherein the first innermost layer has a first dispensing cut-out therein and the second innermost layer has a second dispensing cut-out therein, said cut-outs thereby defining the dimensions of the dispensing aperture, and the first dispensing cut-out being smaller than the second dispensing cut-out.

15. A card box container as claimed in Claim 14, in which the first dispensing cut-out is fully within the bounds of the second dispensing aperture.

16. A card box container as claimed in Claim 14 or Claim 15, in which the cover has dimensions that extend beyond the bounds of the dispensing aperture and said plurality of layers of card comprises at least one spacer layer providing in said passage a spacer aperture between the dispensing aperture and the removable cover so that a gap is provided in the region of the spacer aperture beneath the removable cover and adjacent the dispensing aperture.

17. A card box container as claimed in any of Claims 14 to 16, in which the container has a plurality of side panels, the dispensing cut-outs are being elongate

and attached to opposite ones of side panels.

18. A card box container as claimed in Claim 17, in which said cut-outs each have a long axis and perpendicular to the long axis, a short axis, the long axis being substantially perpendicular to the junction with the side panels

19. A card box container as claimed in Claim 18, in which the first and second innermost layers are free to move relative to each other along said longitudinal axis under flexing of said layers during dispensing of gloves.

20. A card box container as claimed in any of Claims 14 to 19, in which each of said plurality of layers of card in the dispensing side has, from the innermost one of said layers to an outermost one of said layers, a progressively larger cut-out, so that any load imparted on the innermost one of said layers during dispensing of gloves is transferred laterally outward to the outermost one of said layers.

21. A glove dispenser, the dispenser comprising a card box container, the card box container being as claimed in any preceding claim and having a plurality of gloves held within the internal volume of the container, wherein:

- prior to removal of the removable cover, the cuff of the first glove to be dispensed extends through the dispensing aperture and lies adjacent the dispensing aperture in the gap provided between beneath the removable cover; and
- said gloves are interfolded for cuff-first dispensing through the dispensing aperture such that the removal of the cover, a glove pulled cuff-first from the dispensing aperture causes the cuff of the next glove to be dispensed to extend through the dispensing aperture.

22. A glove dispenser as claimed in Claim 21, in which the cuff of the first glove to be dispensed is adhered to the removable cover so that the cuff of the first glove is pulled away from the container as said cover is removed.

23. A glove dispenser as claimed in Claim 21 or Claim 22, in which said gloves held within the internal volume of the container are interfolded in a stack of gloves with thumbs of each glove being positioned on the same side of the stack.

24. A glove dispenser as claimed in any of Claims 21 to 23, in which the gloves are for use in a medical or clinical environment.

25. A glove dispensing system for dispensing gloves cuff first, comprising a glove dispenser, the glove dispenser being as claimed in any of Claims 21 to 24, and a holder for mounting to a vertically extending support, the holder being arranged to receive and hold the container such that after removal of the cover the dispensing aperture is free to dispense gloves and is oriented with the dispensing aperture facing downwards so that, in use with the holder mounted to said support, the cuff of the glove next to be dispensed hangs through the dispensing aperture and away from the container.

26. A glove dispensing system as claimed in Claim 25, in which the holder comprises a mounting bracket and on opposite lateral sides of the bracket a pair of supports that extend away from said bracket surface and between which is held the container, wherein:

- each of said supports has extending from the bracket a vertically extending member, said vertically extending members laterally positioning the container;
- each vertically extending member has at a lower end thereof a horizontally extending member, said horizontally extending members vertically positioning the container;

the horizontally extending members are separated by a gap such that said supports do not interfere with the dispensing of gloves from the dispensing aperture.

27. A glove dispensing system as claimed in Claim 26, in which each vertically

extending member has a vertically extending side section and a vertically extending retaining section, the side section extending between the bracket and the retaining section, the arrangement being such that the lateral positioning of the container is provided by the fit of the container between said retaining sections and the bracket and the fit of the container between said two side sections.

28. A glove dispensing system as claimed in any of Claim 25 to 27, in which the pair of supports is arranged to receive the container from above.

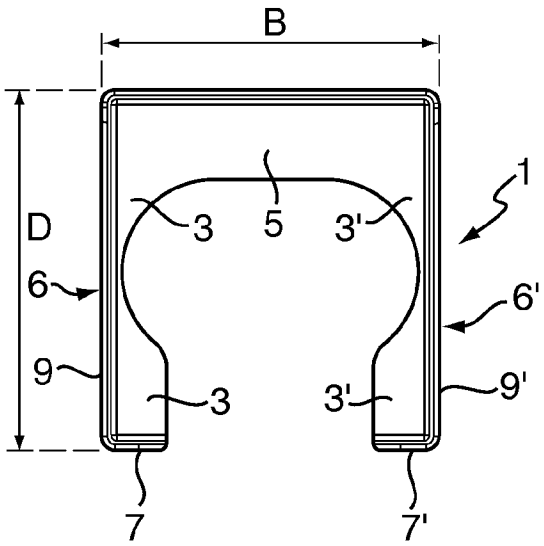

FIG. 2

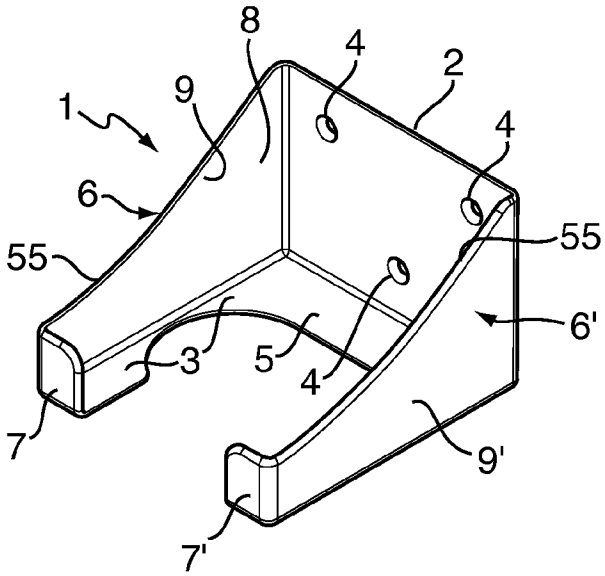

FIG. 1

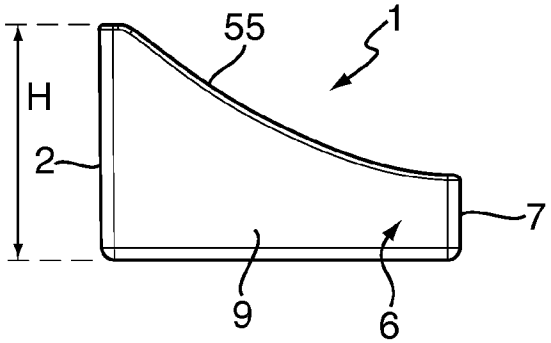

FIG. 4

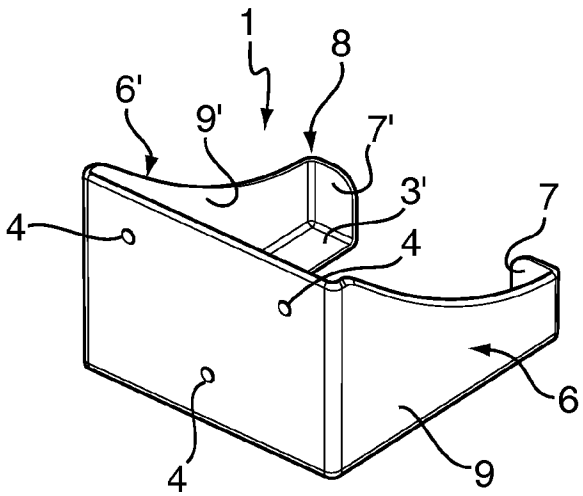

FIG. 3

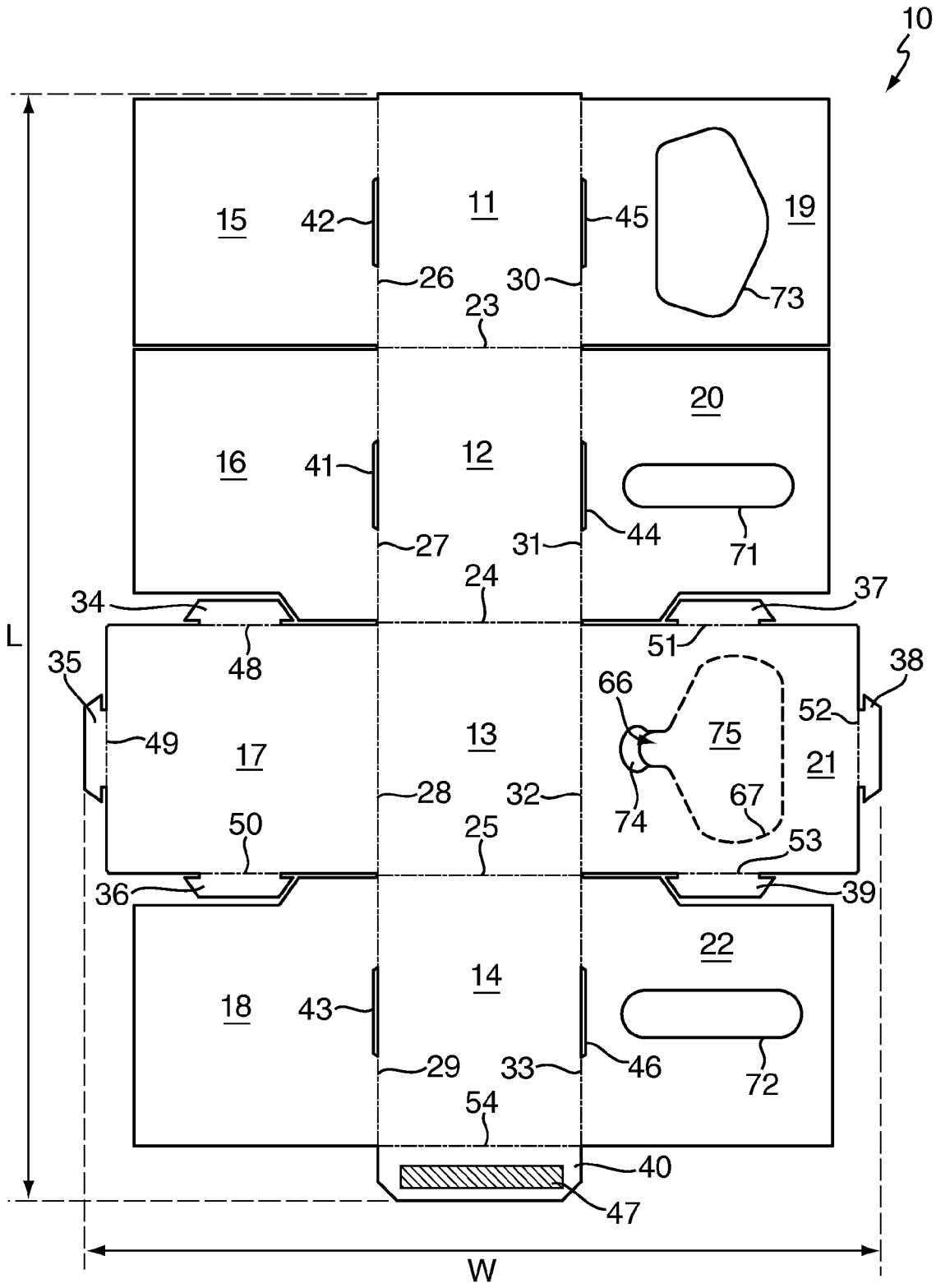
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FIG. 5

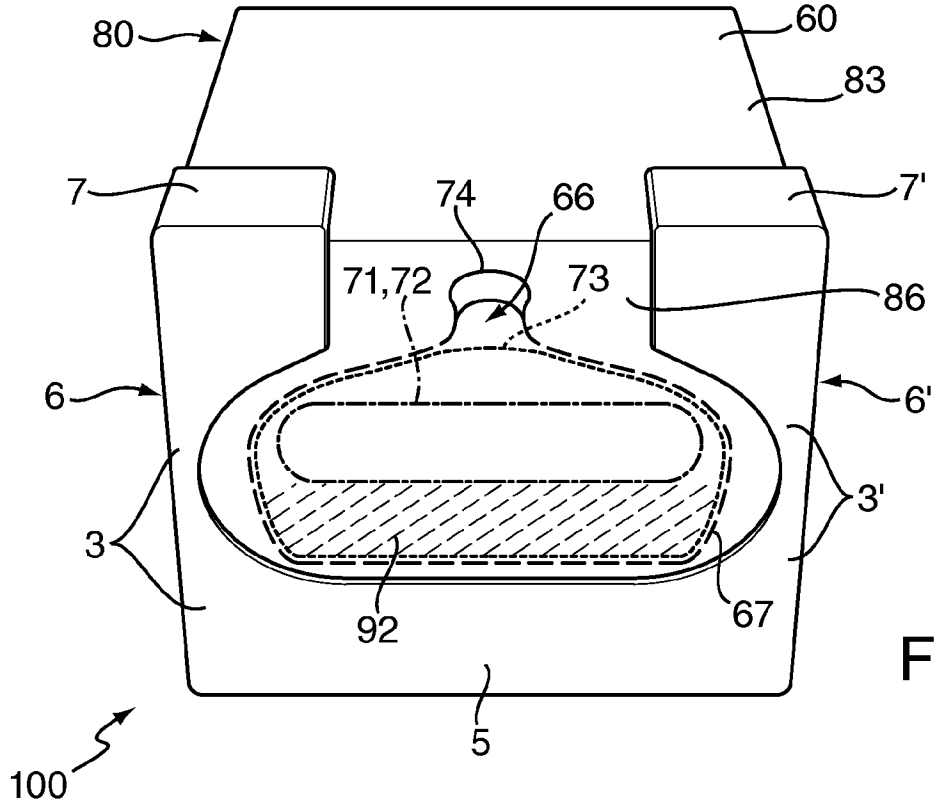
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FIG. 6

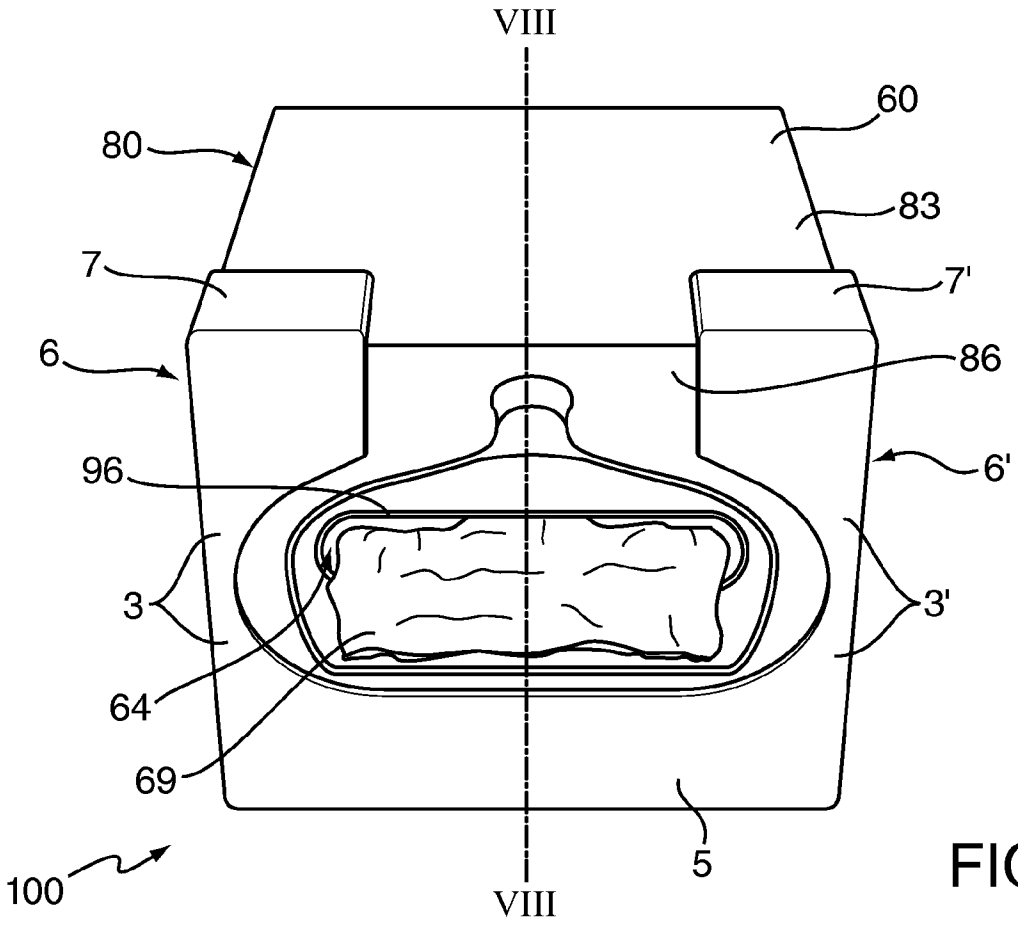
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FIG. 7

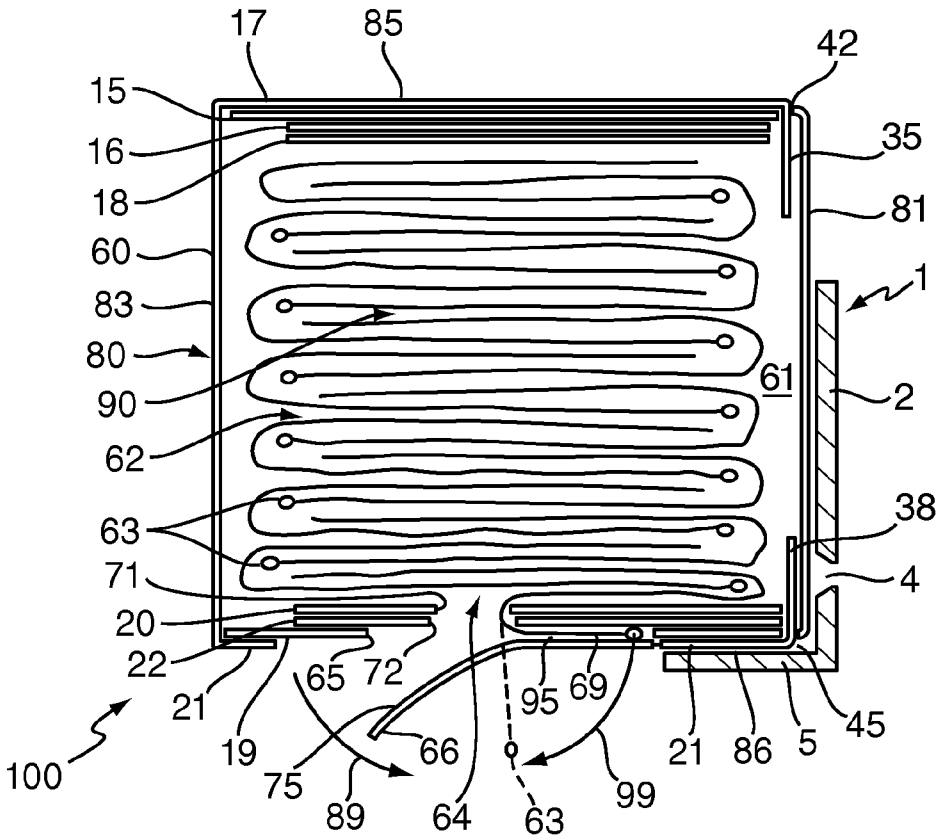
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FIG. 8

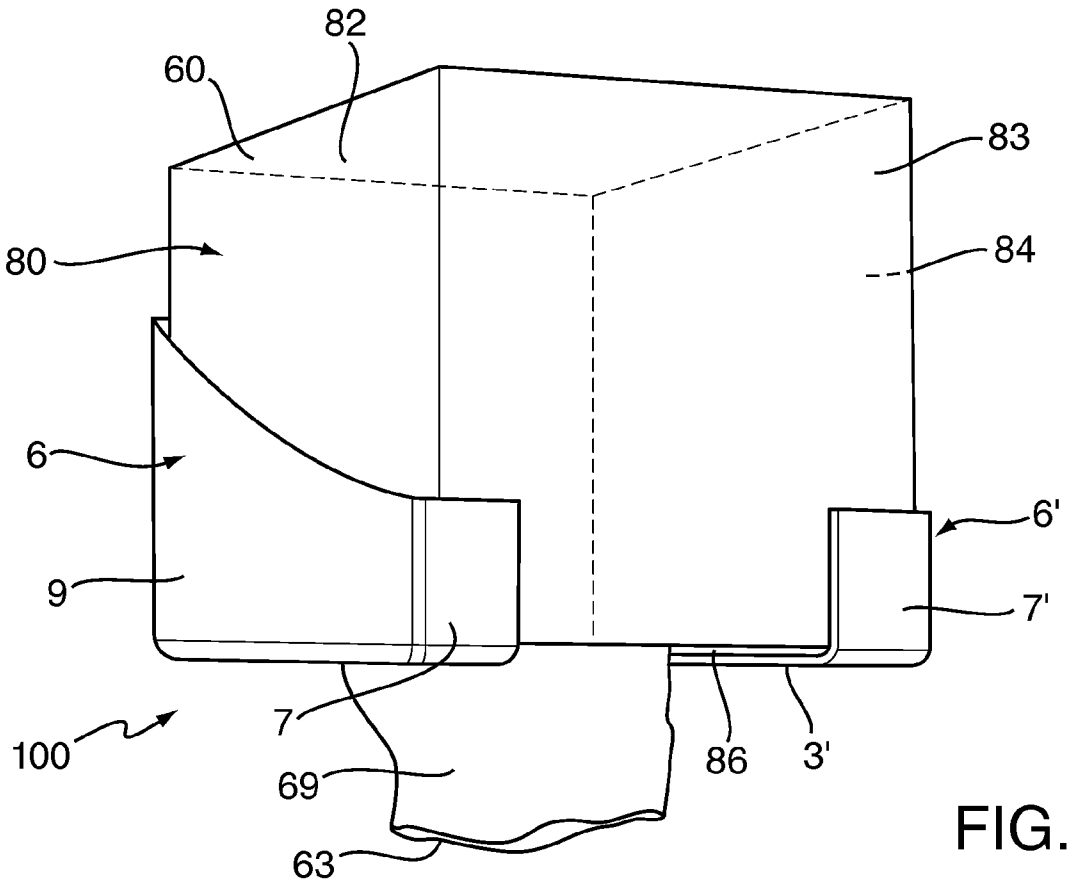
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FIG. 9