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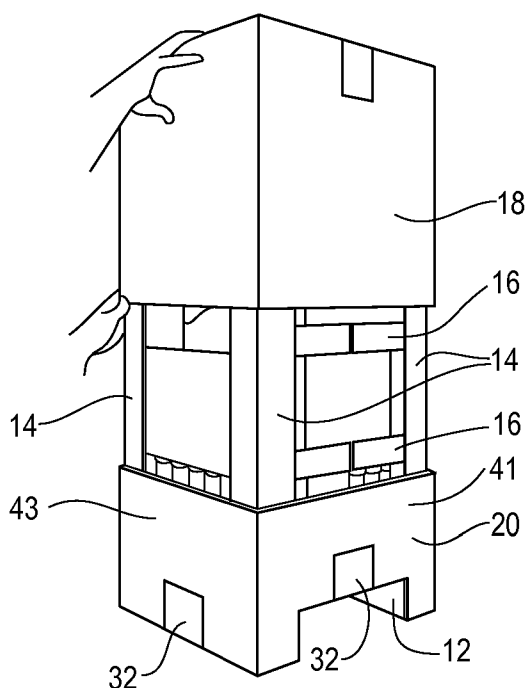
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(57) Abstract: A recyclable, paper based product packaging assembly 10 is provided. The packaging assembly 10 can be used to ship an entire endcap's worth of displayable products 76 while reducing the amount of material used. The assembly 10 comprises a pallet 12, corner posts 14, product trays 16, and a shroud 20. The product trays 16 can be lifted directly from the pallet 12 onto store shelves for display.

TITLE**PAPER BASED PRODUCT PACKAGING ASSEMBLY**

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BACKGROUNDField Of The Invention

This patent relates to a packaging assembly for shipping and displaying products. More particularly, this patent relates to a recyclable, paper based packaging assembly that can be moved with a lift truck, pallet jack or dolly and can carry enough product display trays to fill up a retail store end cap.

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Description Of The Related Art

Retail companies are initiating environmental sustainability programs to reduce the amount of non-recyclable packaging used in their stores. As part of these programs the retail companies are asking their product suppliers to reduce “storebound” materials and to use materials that are readily recyclable.

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Current product displays are delivered to stores based on the idea of filling a single shelf with product. Retailers and suppliers are now considering having an entire endcap’s worth of products shipped in a single container. This presents a problem for the packaging company because an entire endcap of product can weigh 155 pounds or more, which exceeds OSHA’s allowable lifting weight. Consequently, the packaging assembly must be placed on a pallet and moved by lift truck or pallet jack. But placing a packaging assembly on a conventional wood or plastic pallet can create more waste material which is not recycled.

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Thus it is an object of the present invention to provide a recyclable, paper based packaging assembly that can be used to ship an entire endcap’s worth of displayable products while reducing the amount of material used.

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Another object of the invention is to provide a paper based packaging assembly that includes an integral pallet so that the assembly can be moved by fork lift or other mechanical means.

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Still another object of the invention is to provide a palletized packaging assembly

that can be shipped in groups of four on a conventional 40" by 48" pallet.

Another object of the invention is to provide a packaging assembly that can be used to ship irregularly shaped products or soft packaged products yet can still be stacked one packaging assembly on another.

5 Further and additional objects will appear from the description, accompanying drawings, and appended claims.

SUMMARY OF THE INVENTION

The present invention is a product packaging assembly for shipping product display trays to a retail location where the trays can be removed and placed on shelves for display.

The product packaging assembly comprises a pallet member, at least one tray-like structure for holding product, a shroud surrounding the pallet member on four sides, and one or more load bearing structures.

The pallet member has a top, bottom and four sides, and comprises a load bearing panel and runners foldably connected to the load bearing panel and formed from the same piece of folded material as the load bearing panel. At least one of the runners embraces a support member. The runners include spaces formed therein for receiving opposing ends of lateral support members.

The vertical load bearing structures rest on the pallet member load bearing panel over the runners and are disposed between the tray-like structures and the shroud. The tray-like structures are supported by the pallet member and may comprise a tray and a sleeve that surrounds the product.

The pallet member, support members, tray-like structures, shroud and vertical load bearing structures may be made of paperboard.

In a more particular embodiment, the pallet member is a quarter pallet, the tray-like structures are product display trays, and the vertical load bearing structures are corner posts.

The quarter pallet is formed from a folded blank and comprises a load bearing panel and two longitudinal runners or legs foldably connected to the load bearing surface. The inner facing walls of each leg define two sets of opposed openings for receiving opposing ends of a set of lateral support posts. The longitudinal legs define channels for receiving leg support posts. The leg support posts are perpendicularly oriented to the lateral support posts and when installed are interposed between an upper surface of the lateral support posts and the underside of the load bearing panel.

Product carrying display trays are disposed on the pallet and form a part of the

packaging assembly. The assembly may have one or more “layers” of product display trays. A shroud formed from a second folded blank is placed around the quarter pallet and product trays. Corner posts inserted between the shroud and the product trays completes the assembly.

5 The product packaging assembly is formed almost entirely from paper. The quarter pallet blank and the shroud preferably are formed from folded corrugated board. The lateral support posts, leg support posts and corner posts preferably are formed from convolutely wound paper. The quarter pallet, posts and shroud can be disposed of through normal paper recycling programs.

10 The shroud may be affixed to the quarter pallet with tape, although it is anticipated that the assembly can be made and used without tape or with a minimum of tape. The corner posts extend from top to bottom and bear any load that is placed on top of the product packaging assembly.

15 The product packaging assembly is easy to assemble and tear down. Assembly may be done by the product supplier. It is anticipated that four product packaging assemblies can be transported on a single conventional 40” by 48” pallet. At the supplier’s site and at the retail site each packaging assembly can be moved via fork lift, dolly or other means and the product trays removed and placed on the retail shelves.

THE DRAWINGS

Figure 1 is a perspective view of the product packaging assembly of the present invention.

Figure 2 is a perspective view of a partially assembled quarter pallet used in the packaging assembly of Figure 1.

Figure 3 is another perspective view of a partially assembled quarter pallet used in the packaging assembly of Figure 1.

Figure 4 is a perspective view of an assembled quarter pallet.

Figure 5 is a perspective view of a bottom pallet shroud being slid over the quarter pallet of Figure 3.

Figure 6 is a perspective view of the bottom shroud and quarter pallet of Figure 5 being taped together.

Figure 7 is another perspective view of the bottom shroud and quarter pallet of Figure 5 being taped together.

Figure 8 is a perspective view of a product display tray.

Figure 9 is a perspective view of a partially assembled product packaging assembly shown with corner posts and one layer of product trays.

Figure 10 is a perspective view of the partially assembled product packaging assembly of Figure 9 shown with three layers of product display trays.

Figure 11 is a perspective view of the partially assembled product packaging assembly of Figure 10 shown with a partially installed top cap.

Figure 12 is a perspective view of four assembled product packaging assemblies according to the present invention resting on a conventional pallet.

Figure 13 is a perspective view of a product packaging assembly according to the present invention being moved with a pallet jack.

Figure 14 is a plan view of a blank used to make the quarter pallet of Figure 4.

Figure 15 is a perspective view of a blank used to make a shroud for the present invention.

Figure 16 is a perspective view of a partially disassembled product packaging assembly.

Figure 17 is perspective view of a fully set up end-cap, showing the product display trays as they might appear on shelves in a retail setting.

DETAILED DESCRIPTION OF THE INVENTION

While this invention may be embodied in many forms, there is shown in the drawings and will herein be described in detail one or more embodiments with the understanding that this disclosure is to be considered an exemplification of the principles of the invention and is not intended to limit the invention to the illustrated embodiments.

Turning to the drawings, there is shown in Figure 1 one embodiment of the present invention, a product packaging assembly 10. The packaging assembly 10 comprises a quarter pallet 12, four corner posts 14 (Figure 9), product display trays 16 (Figure 9), and a shroud 20. In the embodiment shown in the figures a top cap 18 is also used.

As shown in Figure 2, the quarter pallet 12 comprises three lateral support posts 22 and a folded blank 24. The blank 24, shown in Figure 14, preferably is made from corrugated board and comprises fold lines that allow the blank to be folded and locked into a pallet shape.

More particularly, the quarter pallet blank 24 comprises a top or load bearing panel 48 defined by front and rear edges 50 and opposing fold lines 52. Additional parallel fold lines 54, 56, 58 help define the outer side panels 60, bottom panels 62 and inner side panels 64 of the pallet's two longitudinal legs 49. Fold lines 58 and outer edges 61 help define reinforcing panels 66, 68. When the quarter pallet blank 24 is folded into its final shape as shown in Figure 3, the reinforcing panels 66, 68 lay flat against the underside of the top, load bearing panel 48 and help define shallow grooves in which the lateral support posts 22 are fitted. The leg inner side panels 64 include openings for receiving the ends of the lateral support posts 22. The reinforcing panels 66, 68 may be glued or otherwise affixed to the underside of the top panel 48. In one anticipated embodiment (not shown) the lateral support posts 22 are shaped such that the reinforcing panels 66, 68 are secured between the lateral support posts 22 and the underside of the top panel 48. For example, each corner of the lateral support posts 22 adjacent the underside of the load bearing panel 48 could consist of a longitudinal notch or inwardly extending longitudinal bead having a relatively flat top surface so that the reinforcing panels 66, 68 can be wedged between this

top surface and the underside of the load bearing panel 48.

As shown in Figure 3, the longitudinal legs 49 define channels 26 for receiving leg support posts 28. The leg support posts 28 preferably fit snugly within the channels 26 between the lateral support posts 22 and the leg bottom panels 62 without the need for adhesive.

Figure 4 shows the assembled quarter pallet 12 before being inverted for use. The assembled quarter pallet 12 maintains its shape, one having a flat horizontal load bearing surface 48 and two longitudinal side legs 49, due to the insertion of the leg support posts 28 inside the channels 26 and also due to the bottom shroud 20 which is slid over the quarter pallet 12 as shown in Figure 5. Optional tear tape 32 may be used to further secure the quarter pallet 12 and bottom shroud 20 as shown in Figures 6 and 7. The quarter pallet 12 is so-named because four of them can be loaded "side-by-side" onto a single standard pallet. Typical dimensions for a quarter pallet 12 are eighteen inches wide and eighteen and one half inches deep.

As shown in Figure 9 the four corner posts 14 have a substantially L-shaped profile and fit against the four inside corners of the bottom shroud 20 between the bottom shroud 20 and the product display trays 16. The corner posts 14 extend from the pallet load bearing surface 48 to the top of the top cap 18 so that the corner posts bear most of the load from any units stacked on top. In a typical commercial embodiment each the corner post side is about three inches long.

Preferably, the corner posts 14, lateral support posts 22 and leg support posts 28 are hollow, convolutely wound paper tubes such as those manufactured and marketed by Sonoco Products Company of Hartsville, South Carolina and described in U.S. Patent Nos. 4,482,054; 5,593,039; 6,059,104 and 6,186,329, incorporated herein by reference. In the embodiment illustrated in the figures and as shown in Figures 2-4, both the lateral support posts 22 and the leg support posts 28 are "2 x 4" style posts have a substantially rectangular, cross-sectional profile with longitudinal beads or grooves formed in the two opposing major sides for added strength, although any suitable support posts may be used.

Figure 8 is a perspective view of a product display tray 16 which forms part of the

product packaging assembly of the present invention. The product display tray 16 depicted in Figure 8 carries a three by four array of packaged products 30, although other product configurations can be accommodated. The product display tray 16 comprises a bottom tray 70 and an optional sleeve 74 that fits within the bottom tray 70 or is attached to the tray in tear away fashion. The sleeve 74 can be used to secure and protect irregularly shaped products or soft packaged products so that the product display trays 16 can be stacked one on another to form a multiple layer packaging assembly 10.

As best shown in Figures 16 and 17, the bottom tray 70 comprises a bottom panel, a rear panel, two side panels and a front panel 78. The front panel 78 may be contoured for aesthetic purposes. The product display trays 16 are design to be removed from the packaging assembly 10 at the retail site and placed directly on the shelf or endcap.

The bottom shroud 20 is made from a blank (not shown) and comprises front and rear panels 41 and two side panels. 43 and is configured to fit snugly over the quarter pallet 12 as shown in Figure 5. The bottom shroud 20 has an open bottom and, if used with a separate top cap 18, an open top as well. The front and rear panels 41 are die cut at the bottom to conform to the front and rear profile of the quarter pallet 12 and to leave an opening large enough to accommodate a lift fork, pallet jack, dolly or other lifting means, as shown in Figure 13. The bottom shroud 20 preferably has a glue flap 39 (Fig. 5) hingedly connected to a vertical edge of one of the panels 41 and which can be adhered to another of the panels 43 when the bottom shroud blank is folded into a rectilinear cylindrical shape.

Where, as in the embodiment illustrated in Figures 1-13, the bottom shroud 20 extends upward only part of the height of the packaging assembly 10, the packaging assembly also includes a top cap 18. The top cap 18 is conventional in design and comprises front and rear panels 19, two side panels 21 and top flaps hingedly attached to the top edges of the panels for enclosing the top of the packaging assembly 10. Like the bottom shroud 20, the top cap 18 may have a glue flap (not shown) hingedly connected to a vertical edge of one of the panels that can be adhered to another of the panels when the

top cap blank is folded into a rectilinear cylindrical shape. The top cap 18 has a bottom edge adjacent the top edge of the shroud 20 in the assembled unit 10, as shown in Figure 1.

Tear tape 32 may be used to affix the top cap bottom edge to the top edge of the shroud 20.

5 Preferably the entire packaging assembly 10 is made from paper or paper based materials. The corner posts 14, support posts 22 and leg posts 28 preferably are made from wound paper formed into desired shapes as already noted. The pallet 12, bottom shroud 20 and top cap 18 may be made from folded corrugated.

The product packaging assembly 10 may be assembled in the following manner.

10 The quarter pallet 12 is assembled by folding the quarter pallet blank 24 of Figure 14 into the shape shown in Figure 2. The quarter pallet 12 is then slightly unfolded and three lateral support posts 22 are laid down in the recesses between the reinforcing panels 66, 68 and the support post ends inserted into the openings in the leg inner side panels 64. Next the leg support posts 28 are inserted into the leg channels 26 as shown in Fig. 3. The
15 assembled quarter pallet 12 is shown in Figure 4.

Next, the assembled bottom shroud 20 is placed over the quarter pallet 12 as shown in Figure 5. The assembly is turned over and tear tape 32 may be used to secure the sides of the pallet 12 to the sides of the bottom shroud 20 as shown in Figure 6. Additional tear tape 32 may be placed under the assembly, across the lateral support posts 22 and up onto
20 the front and rear sides of the bottom shroud as shown in Figure 7. It is to be understood that the tear tape 32 is optional.

As shown in Figure 9, after placing the bottom shroud 20 over the quarter pallet 12 and orienting the assembly in an upright position, four corner posts 14 are positioned upright at the corners of the bottom shroud 20 and four product display trays 16 are placed
25 on the pallet 12 such that the corner posts 14 are wedged between the product display trays 16 and the bottom shroud 20. Alternatively, the product display trays 16 may be placed onto the pallet 12 first and then the four corner posts 14 inserted between the product display trays 16 and the bottom shroud 20.

The first four product display trays 16 define a first “layer.” Additional “layers” of product display trays 16 may be placed on top of the first layer as shown in Figure 10. Optional dividers (not shown) may be placed between the layers. The embodiment illustrated in Figure 10 consists of three layers of product display trays 16.

5 As shown in Figure 11, a second shroud, or top cap 18, is placed over the corner posts 14 and product tray layers until its bottom edge meets with the top edge of the bottom shroud 20. Tear tape 32 may be used to secure the top cap flaps and to secure the top cap 18 to the bottom shroud 20 as shown in Figure 1.

10 Four packaging assemblies 10 can fit on a single 40” by 48” conventional wood pallet 34 as shown in Figure 12. The corner posts 16 extend the entire height of the packaging assembly 10. Consequently, a second pallet 34 carrying more packaging assemblies 10 can be stacked on top of the first pallet 34 without damaging the products 30.

15 In the illustrated embodiment the packaging assembly 10 consists of three layers of product trays, each layer consisting of four product display trays 16, each product display tray 16 holding 12 a dozen product containers 76. The entire illustrated product packaging assembly 10 holds forty-eight product containers 76 per layer, or one hundred forty-four total product containers 76.

20 Figure 13 shows a packaging assembly 10 being moved using a pallet lift. Individual packaging assemblies 10 can be distributed to stores and the product display trays 16 can be removed to set up at retail. When the packaging assembly 10 arrives at the retail site, the shroud is removed and the product display trays 16 can be placed directly on the retail shelves. Optional shelf lip fronts (not shown) can be shipped along with the product display trays 16 and placed on the shelves prior to placing the product display
25 trays 16 on the shelves.

Instead of a separate top cap 18 and bottom shroud 20 as shown in Figures 1-13, the packaging assembly 10 may comprise a single shroud that also serves as the top cap. An example of a blank 36 that can be folded into a single shroud that also serves as a top

cap is shown in Figure 15. The blank 36 comprises front and rear panels 40 and side panels 42, the dimensions of which are determined by the size the finished packaging assembly 10, and four top flaps 44, 46 hingedly attached to the front, rear and side panels along a top fold line. The front and rear panels 40 should be die cut at the bottom to conform to the front and rear profile of the quarter pallet 12 and to leave an opening for a lift fork, pallet jack, dolly or other lifting means, as shown in Figure 13. Before the packaging assembly is ready for transport the top flaps 44, 46 may be taped shut or otherwise secured in a closed position. The single shroud 36 includes a glue flap 38 hingedly connected to a vertical edge of the front or rear panel 40 and can be adhered to a side panel 42 when the blank 36 is folded into a tubular shroud having a rectilinear cylindrical shape for sliding over the corner posts 14 and product display trays 16.

Figure 16 is a perspective view of a partially disassembled product packaging assembly 10. The top cap 18 (not shown) has been removed as have the corner posts 14 and the top layer of product display trays 16. The middle and bottom layers of product display trays 16 are shown, with the bottom layer still in place within the product packaging assembly 10.

Figure 17 is perspective view of a store end-cap display having four shelves, each shelf holding three product display trays 16. Each product display tray 16 has a decorative contoured front panel 78 to enhance product tray appearance. Optional decorative shelf lip fronts 80 may be placed on the shelves prior to placing the product display trays 16 on the shelves for additional visual appeal and/or point of sale advertising. The remaining paper based packaging assembly materials are fully disposable at the retail site.

Thus there has been described a packaging assembly made from recyclable paper materials that is strong enough to withstand stacking and simple enough to be assembled at the product vendor site. The packaging assembly has a built in pallet and so can be moved by forklift truck or dolly. The assembly can contain an entire endcap's worth of product display trays in a tight, secure, protected package.

Other modifications and alternative embodiments of the invention are

contemplated which do not depart from the scope of the invention as defined by the foregoing teachings and appended claims. It is intended that the claims cover all such modifications that fall within their scope.

WE CLAIM AS OUR INVENTION:

1. A product packaging assembly 10 comprising:
a pallet member 12 having a top, bottom and four sides, the pallet member comprising a load bearing panel 48 and runners 49 connected to the load bearing panel 48 and formed from the same piece of folded material as the load bearing panel 48, at least one runner embracing a support member 28, and the runners 49 comprising spaces formed therein for receiving opposing ends of lateral support members 22.
2. The product packaging assembly 10 of claim 1 further comprising:
at least one tray-like structure 16 for holding product, at least one the tray-like structure being supported by the pallet member 12.
3. The product packaging assembly 10 of claim 2 further comprising:
a shroud 20 surrounding the pallet member 12 on its four sides.
4. The product packaging assembly 10 of claim 3 further comprising:
one or more vertical load bearing structures 14 resting on the load bearing panel 48 over the runners 49 and disposed between the at least one tray-like structure 16 and the shroud 20.
5. The product packaging assembly 10 of claim 4 wherein the pallet member 12, support members 28, at least one tray-like structure 16, shroud 20 and vertical load bearing structures 14 are made of paperboard.
6. A product packaging assembly 10 comprising:
a quarter pallet 12 made from a first folded blank 24 and having a load bearing panel 48 formed from folded material and substantially parallel first and second legs 49 disposed under the load bearing panel 48 and being formed from the same folded material as the load bearing panel 48, each leg 49 comprising an outer side panel 60 folded

downwardly from the load bearing panel 48, a bottom panel 62 folded inwardly from the outer side panel 60, and an inner side panel 64 folded upwardly from the bottom panel 62, said inner side panels 64 having a plurality of opposed, aligned openings for receiving opposing ends of lateral support posts 22, said legs 49 defining hollow, parallel channels 26 for receiving leg support posts 28 perpendicularly disposed with respect to the lateral support posts 22, said opposing ends of said leg support posts 26 being interposed between the leg support posts 28 and the load bearing panel 48.

7. The product packaging assembly 10 of claim 6 further comprising:
at least one set of product display trays 16 disposed on the pallet 12, each set of product display trays 16 defining a layer.
8. The product packaging assembly 10 of claim 7 further comprising:
a bottom shroud 20 formed from a second folded blank and having front and rear panels 41 and two side panels 43 and having a rectilinear cylindrical shape for sliding over the quarter pallet 12.
9. The product packaging assembly 10 of claim 8 further comprising:
corner posts 14 resting on and extending vertically upward from the load bearing panel 48 and interposed between the shroud 20 and the product display trays 16.
10. (Double shroud embodiment; Figs. 1-13) The product packaging assembly 10 of claim 9 wherein the bottom shroud 20 extends upward less than the full height of the packaging assembly 10, and wherein the packaging assembly 10 further comprises a top cap 18 disposed over the corner posts 14 and product tray layers, the top cap 18 having a bottom edge adjacent the top edge of the shroud 20, the top cap having flaps for enclosing the top of the packaging assembly 10.

11. (Single shroud embodiment; Fig. 15) The product packaging assembly 10 of claim 9 wherein the bottom shroud 20 extends the full height of the packaging assembly 10, and the bottom shroud further comprises flaps for enclosing the top of the packaging assembly 10.
12. The product packaging assembly 10 of claim 9 wherein the bottom shroud front and rear panels 41 each define an opening large enough to accommodate the forks of a fork lift truck.
13. The product packaging assembly 10 of claim 9 wherein the first and second folded blanks are formed from corrugated board and the lateral support posts 22, leg support posts 28 and corner posts 14 are made of convolutely wound paper.
14. The product packaging assembly 10 of claim 9 wherein the bottom shroud 20 is affixed to the pallet 12 with tape 32.

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Fig. 1

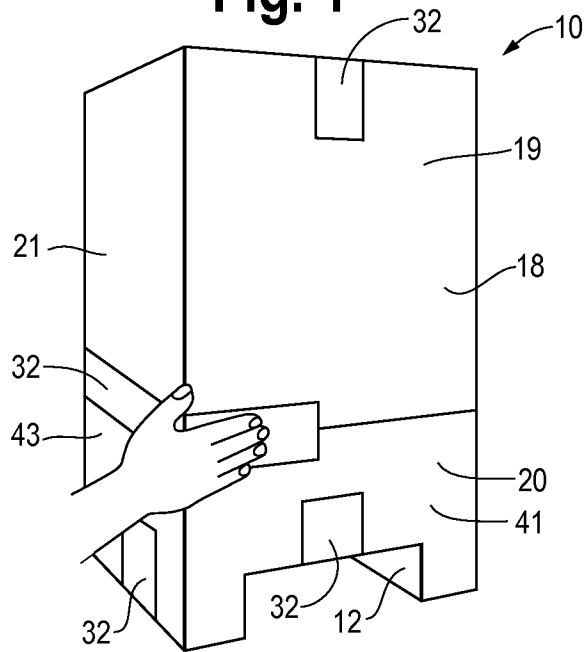


Fig. 2

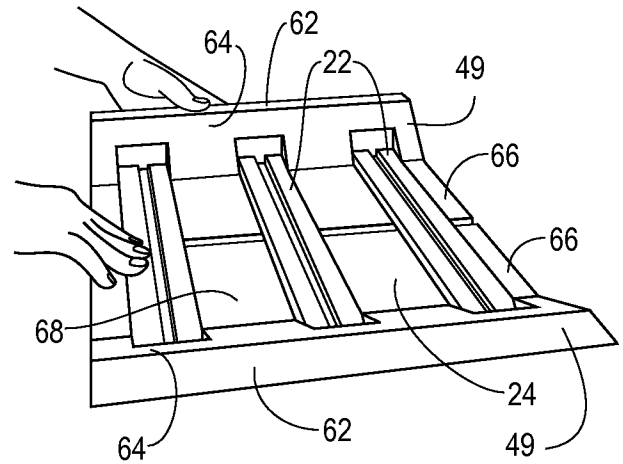


Fig. 3

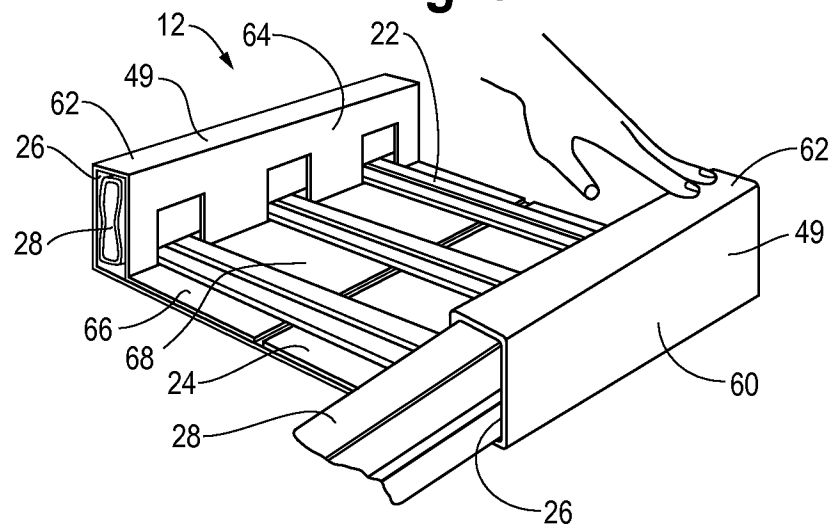


Fig. 4

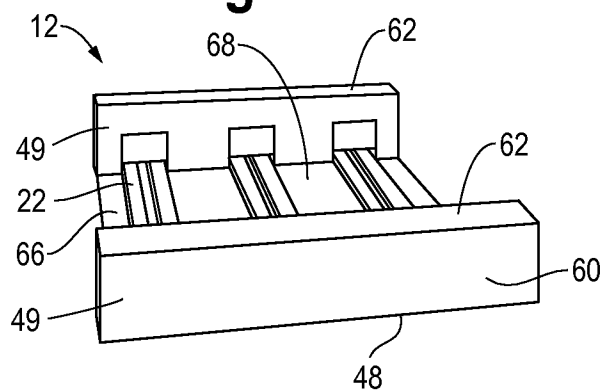
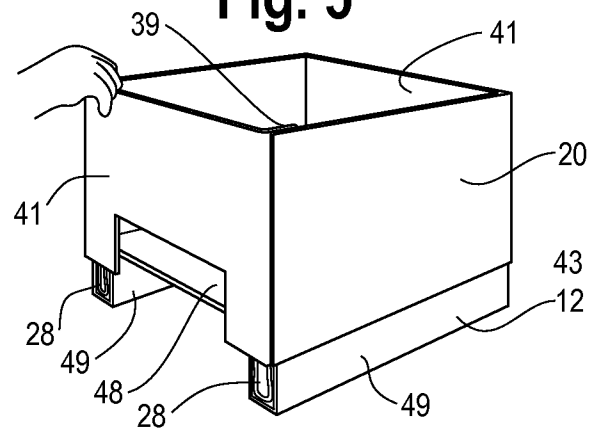


Fig. 5



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Fig. 6

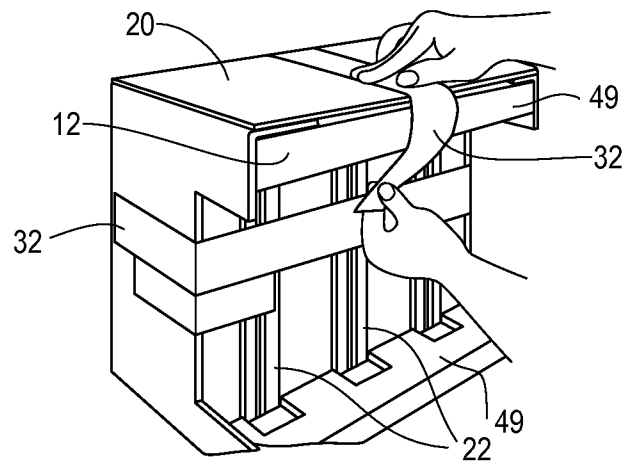


Fig. 7

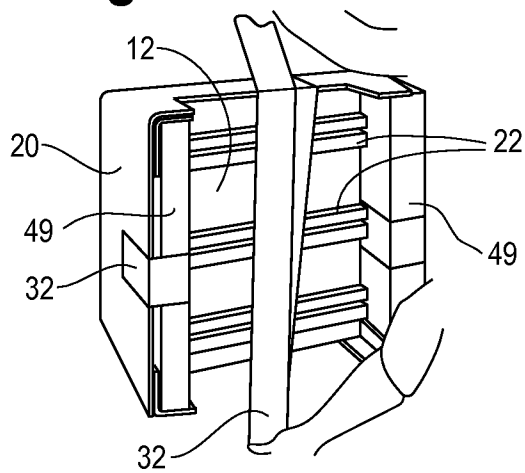


Fig. 8

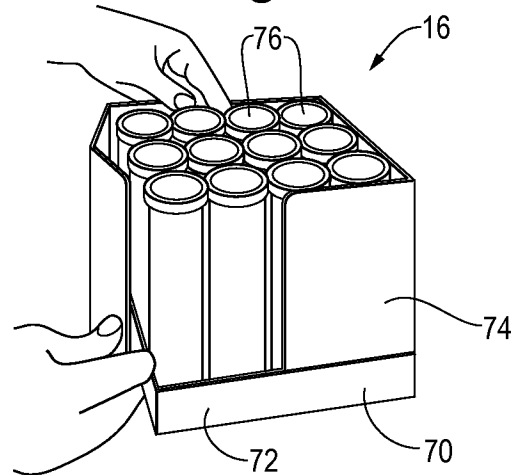


Fig. 9

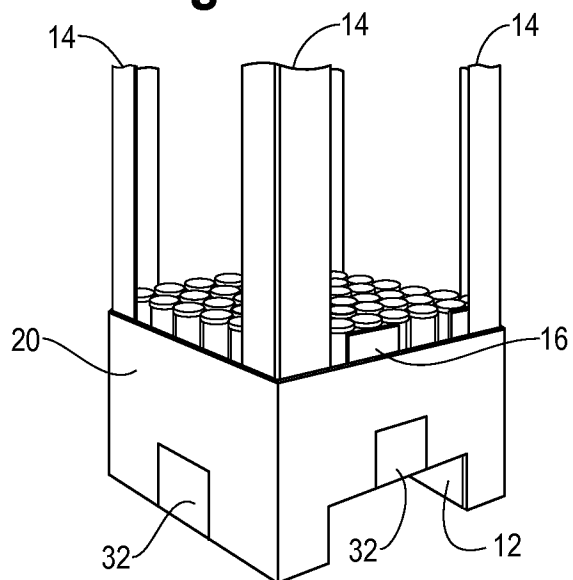
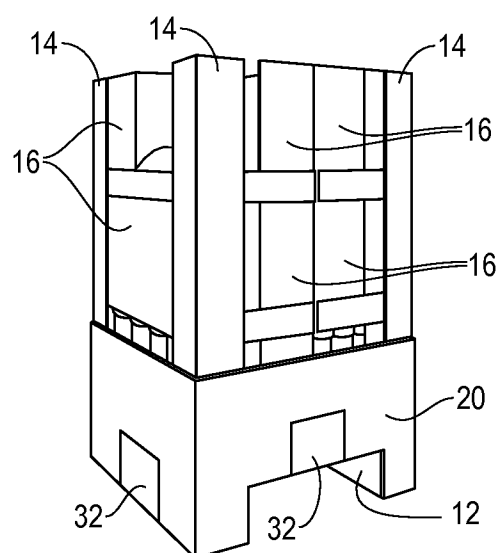


Fig. 10



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Fig. 11

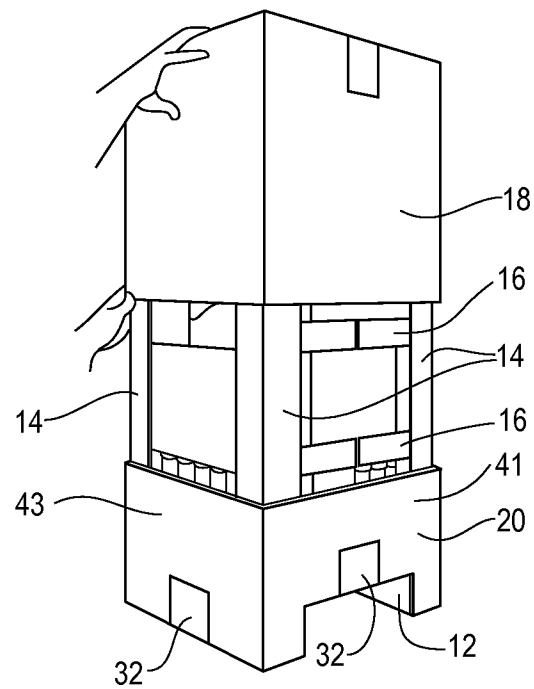


Fig. 12

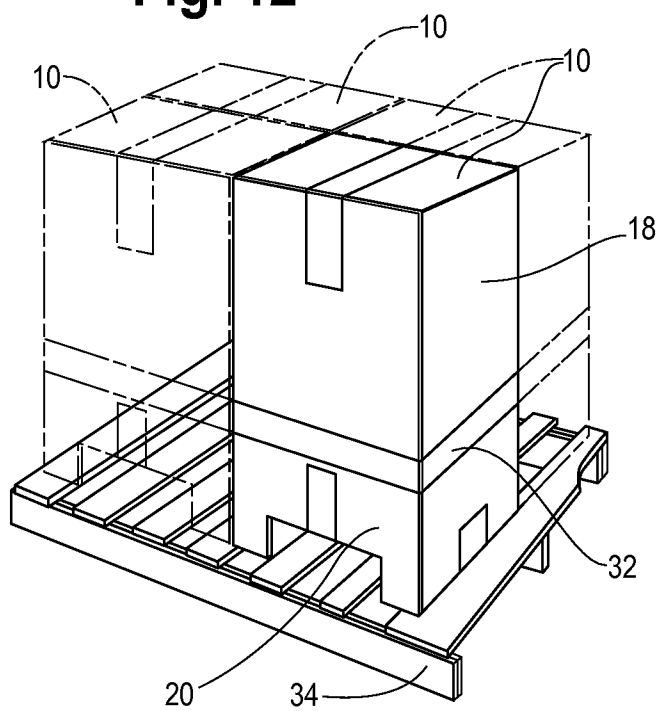
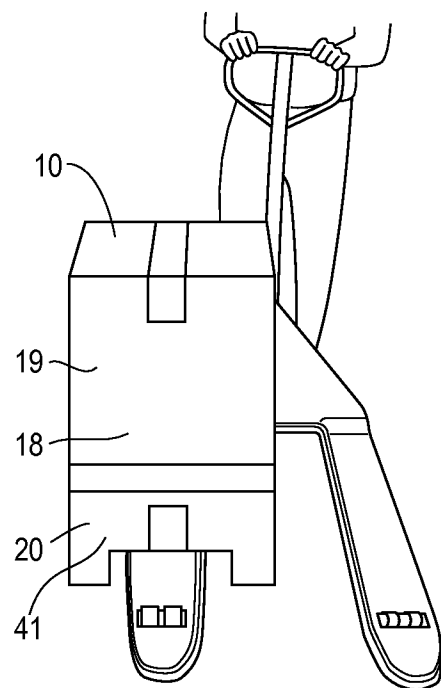
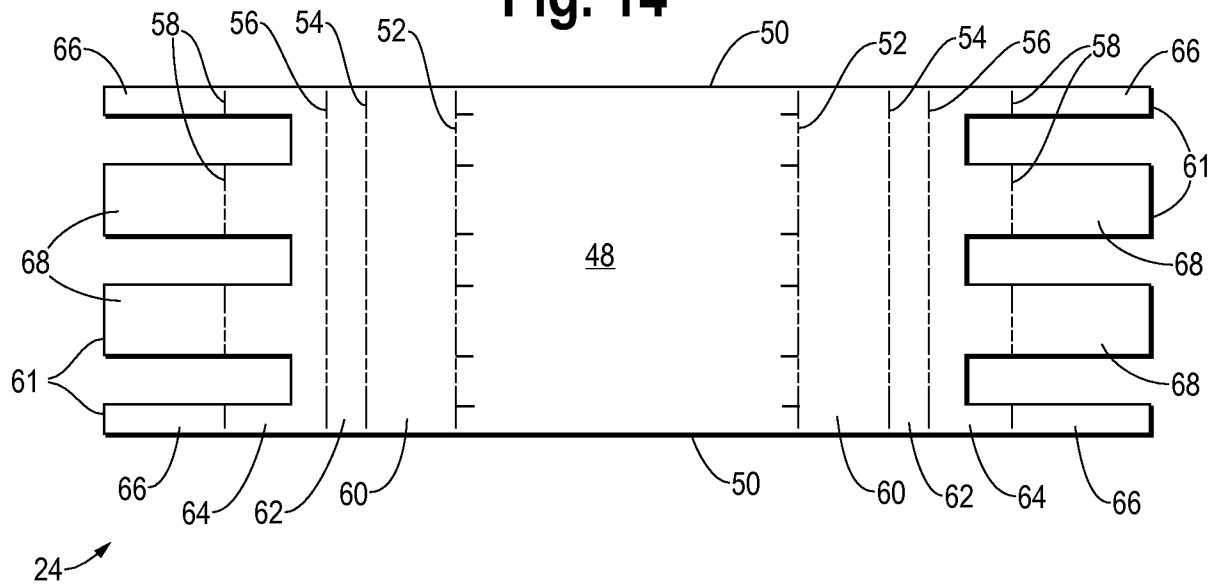
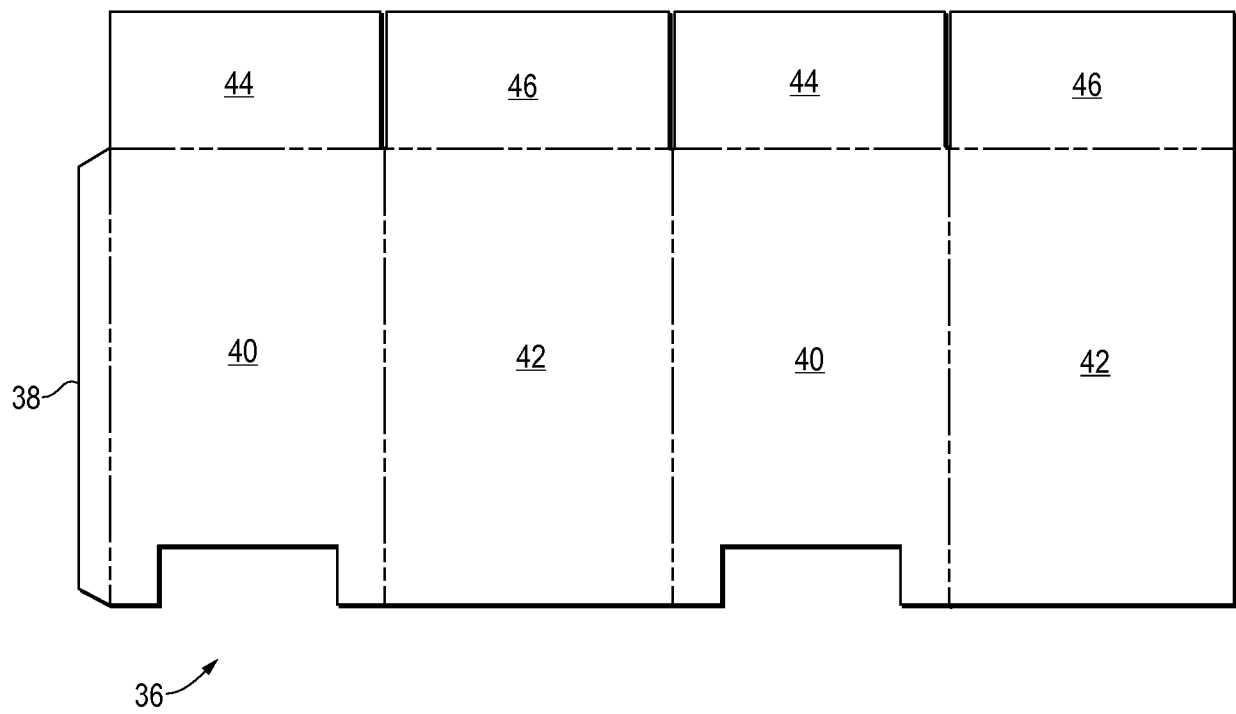


Fig. 13



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Fig. 14**Fig. 15**

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Fig. 16

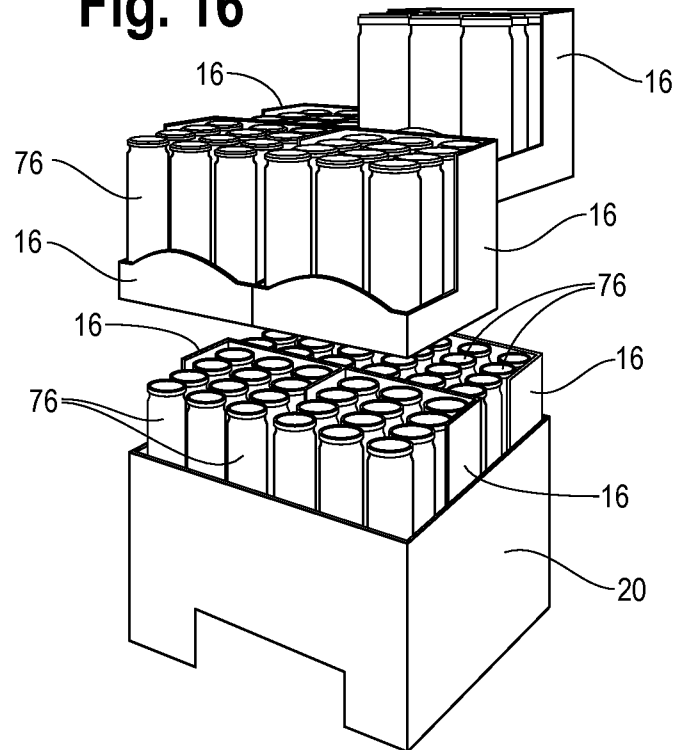


Fig. 17

