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PACKAGING METHOD AND MEANS

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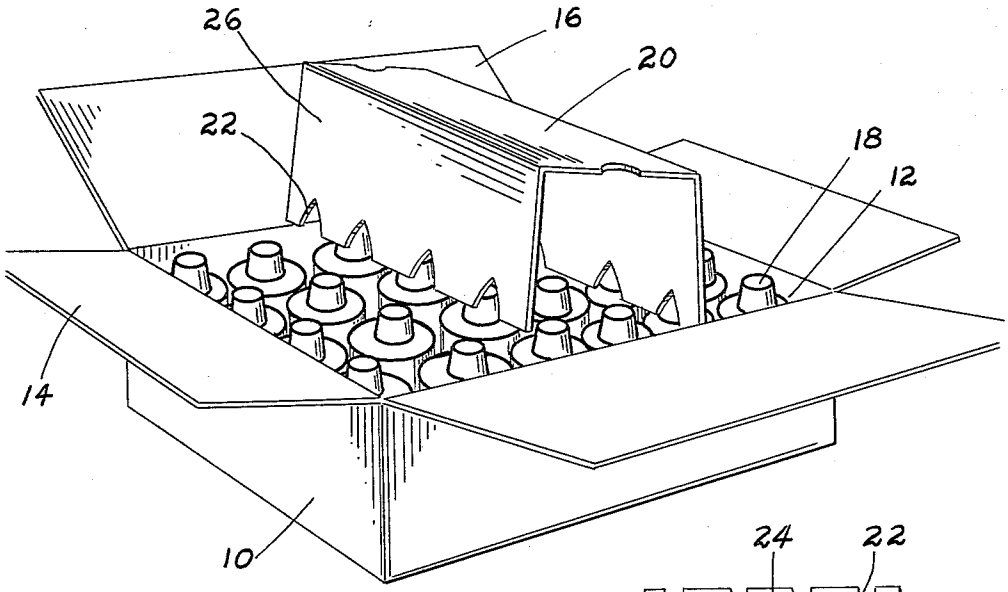


Fig. 1

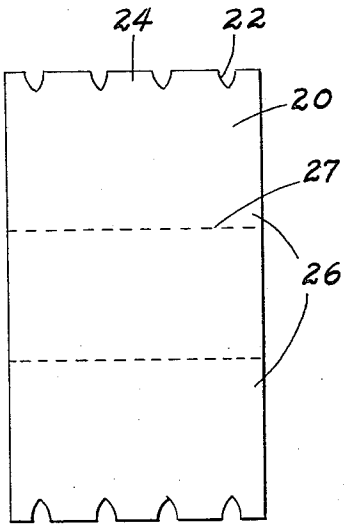


Fig. 2

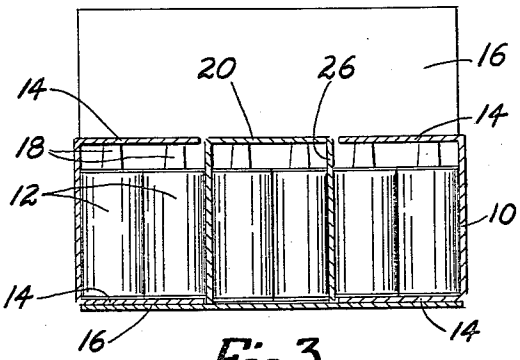


Fig. 3

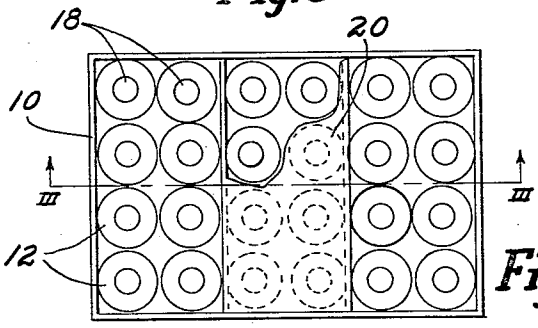


Fig. 4

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PACKAGING METHOD AND MEANS

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This invention relates to a packaging method and structures for effecting the method. More particularly it relates to an economical method and structures for eliminating damage to unit packages when packed, shipped and stored in wholesale lots.

Heretofore, cans having dome-tops with built-in nozzles very frequently have suffered compression damage during shipping and storage. This is due to the fact that conventional corrugated shipping cases are not properly designed for this type of can in that they do not have sufficient structural rigidity but rely partly upon the contents for support when multiple cases are stacked in storage and shipping. In many instances the bottom tiers of stacked cases containing cans of this type may carry excessive loads. Flat-topped cans in such containers help to carry this load and are not damaged, but nozzle-topped cans will not support the load and can be readily and permanently damaged.

This problem has been recognized, particularly in the detergent and cosmetic industries. A number of attempts have been made to overcome this problem, such as using egg-crate type of top-to-bottom separation, with each can nested in its own compartment, or using three inserts, namely a bottom pad, a vertical divider and a top pad. The cost of the first is prohibitive, particularly where the content is to sell at comparatively low price such as in the case of detergents; and the second, although providing additional protection, has not prevented damage, particularly to the central portion of the contents of the shipping case.

According to the present invention, I have provided a very simple single insert which provides the necessary structural rigidity to the shipping case and prevents damage to unit packages therein, whether of the flat-top or the domed-top with built-in nozzle type.

It is accordingly a principal object of the invention to eliminate damage to the unit packages of wholesale lot package-assemblies by a method and means requiring a minimum of labor, time and material.

The method and structure of the present invention are designed to accomplish their objectives without in any way causing disturbance and changes from regular practices which utilize automatic machines to perform many steps of the generic process. They are also particularly designed to effect the requisite improvements of strength, rigidity and protective capabilities in less time and with less labor and material. The invention accordingly accomplishes its objectives by providing a simple unitary insert which is assembled after the unit packages have been placed in the box or carton in which they are to be shipped and stored in wholesale lots. The box or carton is then ready to be sealed and shipped or stored.

A particular feature of the inserts of the invention is the provision of small pointed notches to facilitate their introduction in the desired manner.

The objects, features and advantages of the invention will be more readily perceived after perusal of the following detailed description of specific illustrative embodiments considered in conjunction with accompanying drawings in which:

FIGURE 1 is a perspective view of a case and an insert according to the present invention partially disposed about several rows of cans;

FIGURE 2 is a top-plan view of the die-cut and prescored insert before folding;

FIGURE 3 is a longitudinal sectional view through a shipping case containing six rows of four cans and having the insert according to the present invention positioned therein; and

FIGURE 4 is a top plan view of a case and insert according to the present invention.

Referring now to FIGURES 1 through 4, there is shown a packing case 10 of the general type with which the present invention is concerned. Illustratively, this case is shown as being of a length sufficient to accomodate six rows of cans and a width sufficient to accommodate four cans per row. Case 10 is of the corrugated box type generally referred to as regular slotted case having a bottom and a top formed by a pair of outside or outer flaps and a pair of inside or inner flaps, with each inside flap covering approximately one-third of the length of the box (two rows of cans) and each outside flap covering approximately one-half the entire width.

The individual cans 12 are of the so-called non-drip type having a built-in nozzle 18 in the domed top thereof. These type cans are used extensively throughout the detergent and cosmetic fields and usually are made of a metal body and metal top with a plastic nozzle and cap therefor inserted in the top.

As may be seen in FIGURES 3 and 4, when the standard shipping carton 10 containing twenty-four of these cans 12 is closed, a double layer of corrugated board covers the end two rows of cans but only a single layer of board covers the middle two rows of cans. On the bottom this is not important, since little damage can be done and there is a fairly wide area of support. However, at the top of the case where the nozzles and caps stick up, the bearing area for carrying a load is relatively small and the tops of the cans can be readily damaged. This is particularly so since in standard shipping and storage practice many cases of these cans are stacked one on top of the other to the point where it is not uncommon to have loads of up to five hundred pounds per square foot on the bottom case. This obviously puts a substantial load upon the central two rows of cans and frequently dents the tops as a result of the downward pressure exerted through the caps and nozzles.

Cartons of sufficient structural strength are prohibitive from the cost standpoint so that some other means of preventing the damage is necessary. In the packaging of these cases, automatic case packers are used which can load the cans into the cases as fast as the high-speed filling machines can fill the cans with the desired fluid. Rates in the neighborhood of three hundred cans a minute are not unusual in this type of operation. The attempt to solve the problem of insufficient protection of the cans against vertical compression by merely placing into the case two sheets of corrugated board of the same size as the case, one below and one above the cans, and inserting a longitudinal insert, likewise of corrugated board, between the cans, has not been satisfactory for at least two reasons: One, the cans still are damaged due to the fact that insufficient support in the central section is maintained; and two, an excessively large amount of manual labor is required to put the inserts in, since the automatic machinery will not handle them. Thus solution thus becomes questionable from the standpoint of protection of contents as well as the economical standpoint and is justified only as long as no better method is available. The present invention is therefore the answer to the problem.

Referring now to FIGURE 2, there is shown an insert according to the present invention which consists essentially of a single piece of corrugated board of the same

weight as the standard case 10. In the illustrative embodiment the insert 20 has a length equal to twice the height of the cans to be placed in the carton plus twice the diameter of the row or rows of cans to be covered by it. The width of the insert 20 is equal to the sum of the diameters of the number of cans to be inserted in a row within the case. The length, of course, could be varied so as to be twice the height of the can plus any integral number of diameters of the can, and the width could be any desired distance. Each end of the insert 20 has die-cut therein a series of inverted V's which are positioned so as to fall at the line of contact between two adjacent cans in adjacent rows of cans. It should also be noted that the corrugations in insert 20 extend lengthwise thereof to present vertical corrugations in leg portions 26 when inserted in a case.

In use the insert 20 is folded at pre-scored lines 27 to the inverted U shaped configuration shown in FIGURE 1 and placed in the carton 10 about the middle two rows of the cans 12 in the manner shown in FIGURES 1 and 4. The insert 20 forms a rigid channel beam-like reinforcement in the central portion of case 10 giving greatly increased support throughout the weakest portion thereof. There is thus created, for purposes of compression strength, a separate case for each eight cans instead of one case for twenty-four cans. Also, as may be seen in FIGURE 3, with the insert 20 in the closed case position, there are now two complete layers of corrugated board over the tops of all cans with complete support throughout the entire width.

The V shaped slots 22 are provided to permit very rapid and simple insertion of the insert into the filled case 10. The cut-outs 22 are sufficiently wide so as to provide a sort of camming action as the insert is placed between adjacent rows of cans to spread them apart and guide the entrance of the downwardly extending leg portion 26 between the adjacent rows of cans 12. While I have shown four cut-outs 22 it is obvious that the cut-outs could be of any desired number, depending upon the number of cans per row, and would be spaced to correspond with the lines of contact between the cans in adjacent rows.

With this particular insert it has been found that the load-bearing strength of the closed case is increased by about two hundred percent and completely effective protection from damage by vertical compression is provided for all cans in the case under all normal conditions of storage and shipping. Also, one man can easily keep up with the automatic case packing machines even when run at a speed in excess of three hundred cans a minute where at least two men would be needed to handle the protective inserts presently in general use.

It is thus apparent that I have provided a very simple and economical insert for standard corrugated packing cases that provides greatly increased structural strength and protection for the contents.

While there is given above a certain specific example of this invention and its application in practical use, it should be understood that this is not intended to be exhaustive or to be limiting of the invention. On the contrary, this illustration and explanation herein are given in order to acquaint others skilled in the art with this invention and the principles thereof and a suitable manner of its application in practical use, so that others skilled in the art may be enabled to modify the invention and to adapt and apply it in numerous forms each as may be best suited to the requirements of a particular use.

I claim:

1. A corrugated board package assembly for use with automatic packing machines, said assembly comprising in combination a rectangular corrugated box having outside and inside flaps at the top and bottom thereof to form top and bottom closures for the box, said outside flaps each having a width sufficient to cover one-half the width of the box and said inside flaps having equal lengths less than one-half the length of said box; a plurality of easily damageable containers occupying the interior of said box, said containers having domed tops with built-in nozzles and being arranged in rows in the box in upright position with their domed tops adjacent the top of the box; and an independent three sided channel-shaped insert member of corrugated board having two depending straight sides extending vetrically downward between adjacent rows of said containers to the bottom of said box and a top side joining said depending sides adjacent and between the ends of said top inside flaps, said insert being inserted into said box after it has been loaded with said containers and enclosing at least one row of containers, the depending sides of said insert being engaged at their top and bottom edges by the ends of said inside flaps and providing intermediate unitary supports for the upper outside flaps of said box when the latter are folded into their box closing position.

2. A protective and strengthening corrugated board insert in combination with a corrugated box containing a plurality of like cylindrical containers arranged in upright position in a plurality of rows, each container having a projecting and easily damageable top portion of greatly reduced cross sectional area, said box having outside and inside flaps at the top and bottom thereof, said outside flaps each having a width sufficient to cover one-half the width of the box and said inside flaps having equal lengths less than one-half the length of said box, said protective and strengthening insert being inserted vertically in a previously loaded box in unsecured relation thereto and having an inverted U-shaped cross sectional configuration comprising a top portion and two vertically depending straight leg portions of equal length, said top portion having a length substantially equal to the width of said box and having a width such that its longitudinal edges abut the inner edges of the top inside carton flaps when the latter are folded into place, the height of each of said leg portions being substantially equal to that of said box whereby the top portion of said insert is rigidly supported at a height substantially coextensive with the top of said box, said protective insert when inserted in the box enclosing at least one row of said containers with the top portion thereof overlying the reduced top portions of the containers, said leg portions having a plurality of spaced notches along their lower edges for engaging the points of contact between containers in adjacent rows to facilitate installation of the protective insert, said depending leg portions providing intermediate unitary supports for the upper outside flaps of said box when the latter are folded into their box closing position.

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