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[54] UNITARY PALLET PACK CONTAINER

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[51] Int. Cl. B65d 13/00

[58] **Field of Search**..... 108/52, 55, 56;
229/41 A, 41 B, 23 R, 14 R

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[57]

ABSTRACT

A knock-down type of container incorporating a pallet structure as a unitary part thereof.

9 Claims, 8 Drawing Figures

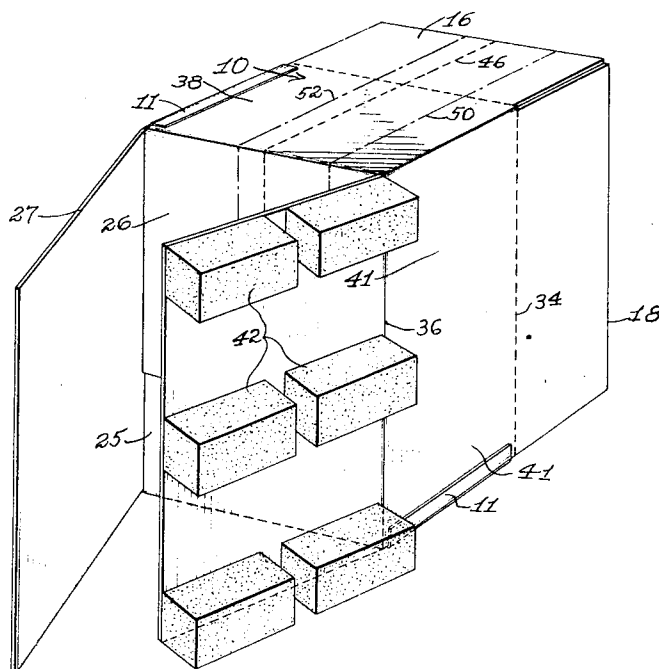


FIG. 4.

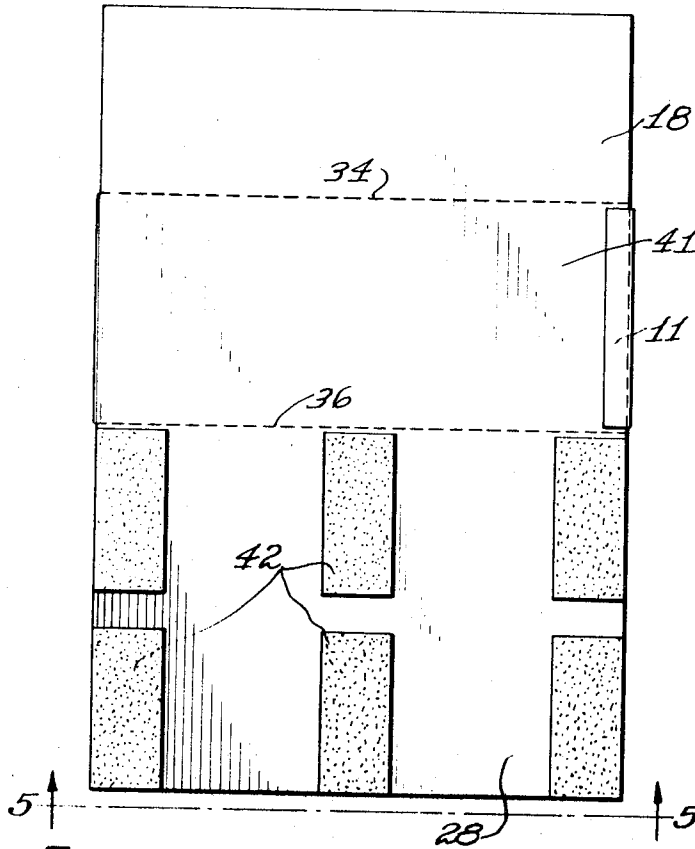


FIG. 5.

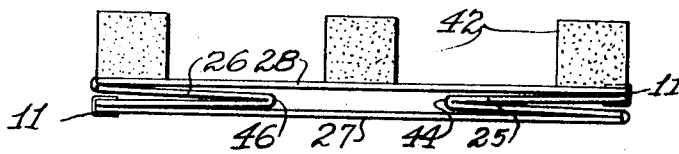
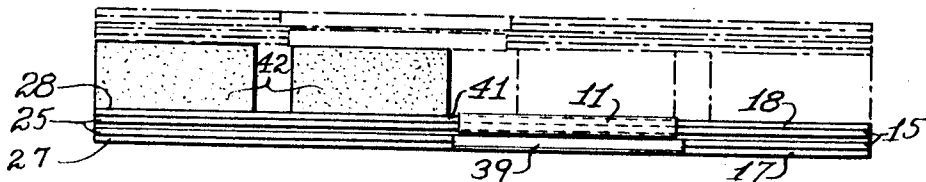


FIG. 6.



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FIG. 7.

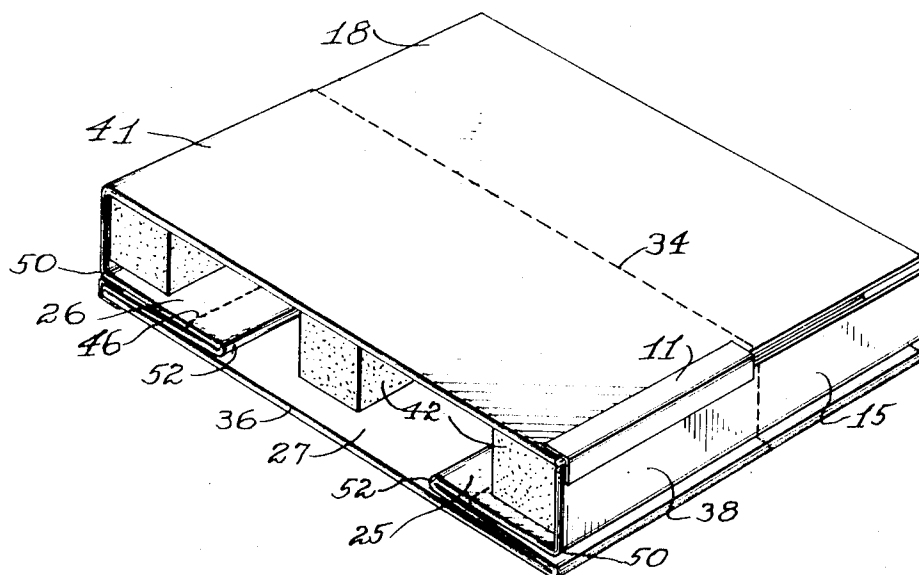
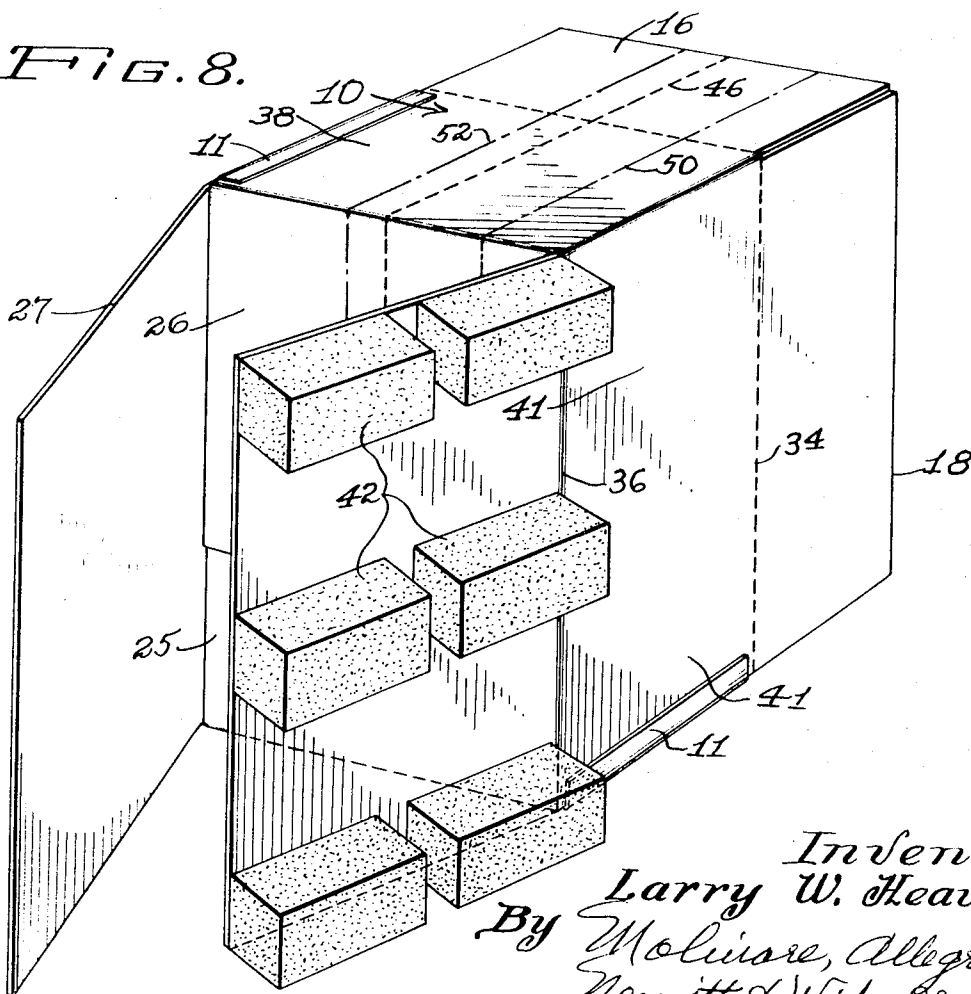


FIG. 8.



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UNITARY PALLET PACK CONTAINER

BACKGROUND OF THE INVENTION

This invention relates to a novel form of shipping container in which a pallet structure is incorporated as a unitary part thereof. Because of the relatively low cost of manufacture of the novel container said container may be deemed to be of an expendable nature, capable of a single use, or if desired, is capable of limited re-use. The novel construction comprising a container having a pallet structure as a unitary part thereof results in great convenience in use and handling, and is most economical to manufacture. It results in substantial savings in time and space in storage as well as great saving of time and labor in set-up of the carton preparatory to use. The novel container can be set-up or erected for use in approximately 20 seconds as compared to many prior pallet type container constructions which require up to 20 minutes to set-up for use.

For a great number of years it has been a common and established practice in shipping of articles of manufacture to utilize various types of containers to which are attached at the bottom thereof a suitable pallet for permitting quick and convenient handling of the filled containers for transporting or for storage of the filled containers. Such prior container-pallet assemblies include a pallet construction of such type as to accommodate the fork of a lift truck. The pallets usually are attached to the containers by means of staples, nails or other types of fasteners and sometime by banding of the containers to the pallet by use of strap material.

Heretofore pallets have always been made up as a separate unitary structure. The principally used form of pallet structure comprises a platform made of wood which is fixedly attached and mounted on skids which are in the form of blocks or runners made of wood. Because of the relatively high cost of manufacture of such pallets it is necessary that they be used over and over many times. Such re-use of wooden pallets results in further substantial expenses to the shipper because it necessitates salvaging the pallets after shipment and collecting and storing them together with maintenance of records with respect to such stored pallets for purposes of return and of records with respect to such stored pallets for purposes of return and off-set credit against the shipper. Additional expense made of also incurred by way of freight charges incident to returning the pallets to the shipper. Because of the nature of such pallets they frequently become damaged in use and, as a result, persons handling such used pallets are often subjected to bodily injury. In using wooden pallets and suitably attaching them to the container for the goods to be shipped a very substantial amount of time is consumed in properly affixing the pallet to the container. In utilizing certain types of containers in conjunction with wooden pallets it was found that up to twenty minutes is consumed in affixing the pallet to the container. In addition, it is necessary that containers and pallets be separately stacked or stored and must be removed piece by piece for final assembly preparatory for use.

Because of the extremely high cost the manufacture in the manufacture and use of wooden pallets there has heretofore been devised pallets in the form of trays wherein the tray is made of corrugated paper board and the skids attached to the underside of the trays are formed of synthetic plastic material, or corrugated or fiber cores, or wooden blocks or runners. The trays are

usually so dimensioned as to permit telescoping around the bottom marginal edges of a tubular carton body which has no bottom. For some uses the carton does not have a top and a similar tray, without skids, is utilized as a top and is telescoped over the upper marginal edge of the tubular carton body. In other instances, in lieu of utilizing a corrugated paper board tray for the top, the carton body is formed with conventional top closure flaps.

Another construction, which has heretofore been used, utilizes a conventional wooden pallet in conjunction with a bottomless carton body wherein the lower marginal edges of the side walls and/or the end walls of the body are formed with inwardly extended flanges adapted to be seated upon and fixedly secured to the top of the wooden pallet by stapling or nailing to the wooden platform of the pallet. In some constructions, in lieu of forming flanges at the lower marginal edges of the carton body for securement to the pallet platform, a usual type of carton body is employed, having flaps to constitute a bottom and which body is seated upon the wooden pallet and after the carton is filled it is banded to the wooden platform of the pallet.

Another type of container-pallet construction utilizing a carton body is disclosed in the Addition U.S. Pat. No. 2,633,982, dated Apr. 7, 1953. As seen in FIG. 4 of this Patent, a pallet is made up of a platform comprising one or more panels of corrugated paper board and secured to the underside thereof are skids formed of corrugated fibre board. The platform of the pallet has a pair of oppositely disposed, downwardly extending flanges. The container body to be used with such a pallet is of the bottomless type formed of corrugated paper board, adapted to be seated upon the platform of the pallet and having a pair of corresponding end walls provided with extension flaps adapted to register with the downturned flanges constituting extensions of the platform of the pallet. The extensions of the carton body and the down-turned flanges of the platform are firmly attached together by stapling.

In all prior art constructions of containers utilizing pallets it requires at least two separate unitary structures (a body and a pallet) which must be stored separately and handled separately and then ultimately attached together to produce a complete shipping container of the pallet type, ready for the reception of articles or products. The time required in handling of two or more separate construction assemblies and attaching them together adds greatly to the cost of providing a pallet type container. When the pallets of these prior constructions are made of wood, because of the high costs, it is desirable to salvage them for re-use and hence are returned to the shipper, which as above indicated, results in additional freight charges as well as added time and expense of record keeping for allocation of appropriate credits incident to the return of used pallets.

One of the objects of the present invention is to provide a novel form of knock-down type of shipping container which includes a pallet structure as a unitary part thereof.

Another object of this invention is to provide a novel knock-down type of container having a pallet structure as a permanent and unitary part thereof and which is capable of economical manufacture and use so as to permit disposal thereof after use. In most instances, such a container is also capable of limited re-use.

A further object of this invention is to provide a novel knock-down type of container having a pallet construction as a unitary part thereof and which effects substantial economies in storage as a single unitary assembly and which permits great savings in time and labor required in set-up of the carton preparatory to loading.

Still another object of this invention is to provide a novel knock-down type of container having a pallet structure as a unitary part thereof and which is constructed so as to be extremely convenient and easy to handle and which eliminates possible injury to the person in set-up of the container and which effects substantial savings in freight charges in use.

Other objects and advantages of this invention will be apparent from the following description, taken in conjunction with the accompanying drawings:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the knock-down type of container including a pallet structure as a unitary part thereof and embodying the present invention.

FIG. 2 is a vertical sectional view through the container-pallet assembly, taken substantially as indicated in lines 2—2 on FIG. 1.

FIG. 3 is a plan view of the blank container body having pallet skids fixedly attached thereto.

FIG. 4 is a plan view of the container-pallet assembly in knocked-down form.

FIG. 5 is an edge view of the knocked-down assembly, taken as indicated at line 5—5 on FIG. 4.

FIG. 6 is an end view of the knocked-down container-pallet assembly with a second assembly, represented in dot and dash outline to show the manner of convenient, compact stacking of the knocked-down container-pallet assemblies in storage.

FIG. 7 is a perspective view showing another form of knock-down arrangement of the pallet assembly embodying the present invention.

FIG. 8 is a perspective view showing the novel container-pallet assembly in partially erected form.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The container represented in the drawings, as indicated at 10, is of a conventional type, in the nature of a carton formed of corrugated paper board, having both top and bottom closure flaps or panels. The blank from which the carton body is formed, is provided with slots and score lines as shown in FIG. 3 of the drawings. As shown, the blank is composed of two sheets of corrugated paper board stock, joined together by a strip of adhesive tape 11, to provide a flexible interconnection, and when the blank is folded to form a carton body the free edges are interconnected by a second strip of adhesive tape 11, to provide a flexible interconnection of parts of the body of the carton. It is to be understood that the carton body may be formed from a blank, composed of one or a plurality of sheets of corrugated paper board, connected together, depending upon the size of the carton desired and the equipment available for producing the slotting and scoring operations thereon. When the container desired is intended for shipping or storing relatively heavy objects or articles, the carton may be made from blanks comprising a plurality of laminations of corrugated paper board or it may be made of fiber board stock.

The combined two-piece carton blank as shown, is provided with slots 12, 13, and 14, to form top end flaps 15 and 16 and top side flaps 17 and 18. The lower portion of the carton blank is also provided with slots 20, 21, and 22, to form bottom end flaps 25, 26, and bottom side flaps or walls 27 and 28. The intermediate or body portion of the carton is provided with score lines 30 and 32, in alignment with slots 12—20 and 14—22, respectively. The score lines 30 and 32 also serve to provide flexible interconnections of the adjacent panels or walls of the body, similar to the flexible, taped interconnections, 11, between adjacent walls of the body. The carton blank is also provided with two parallel, transversely extending score lines 34 and 36, to provide flexible interconnections between body of the carton and the top and bottom flaps. The score lines 30 and 32, and the connections provided by the strips of tape 11, together with the transverse score lines 34 and 36, define the body portion of the carton, which comprises an end wall 38, a side wall 39, end wall 40, and a side wall 41. The carton blank may be folded into tubular form about the score lines 30 and 32 and the flexible connections provided by the strip tape 11, connecting the edges of the side wall 39 and end wall 40, and the free edges of end wall 38, and side wall 41, connected by a strip of tape 11, to form a tube of corrugated paper board.

Mounted on the bottom surface of the bottom wall 28, of the carton blank are two or more rows of skids 42. The skids may be in the form of blocks or runners and they may be formed of wood, corrugated paper board or fibre board or they may be made of synthetic plastic material, such as expanded polystyrene for purposes of economy in manufacture as well as minimum weight. The skid blocks are attached to the surface of the bottom panel 28, which constitutes the outer bottom surface of the carton, by the use of high strength, water-proof, hot-melt adhesive.

After the carton blank with the skids attached to the bottom wall is initially completed, in the form of a tube as above described, it may be collapsed by hinging or folding at a pair of opposite flexible connections of walls of the body. However, in order to save space in storage and to provide maximum convenience in handling, the carton blank is formed with score lines 44 and 46, extending through the end walls 38 and 40 of the body and through the respective aligned top and bottom flaps. By providing the score lines 44 and 46, it is possible, when the carton is in tubular form, to fold it along these score lines so that portions immediately adjacent said score lines are caused to be folded inwardly, like a pleat, as seen in FIG. 5 of the drawing, so as to produce a knocked-down, compact form of container with skids as a unitary part thereof, as seen in FIGS. 4 and 5 of the drawings. In this compact form the knocked-down cartons may be conveniently stacked and stored, one upon another, with each alternate container assembly positioned in opposite and reverse relation to the container immediately therebelow, as seen in FIG. 6 of the drawing.

To provide another or alternate form of collapsing of the container in knocked-down form, the end panels 38 and 40 and their corresponding top flaps and bottom flaps are each provided with two additional sets of score lines 50 and 52, shown in dot and dash lines. For this alternate type of knocked-down container, when in tubular form, the two bottom flaps 25 and 26, are

folded inwardly so as to lie against the inner surface of the body end walls 38 and 40 respectively and the bottom flap 27, is then folded inwardly against the inner surface of side wall 39 of the body. The bottom wall 28, to which the skids 42 are attached, is then folded into the interior of the carton body so that the upper surface of the bottom wall 28, abuts against the inner surface of the side wall 41, of the body. In this condition of the carton, the end walls 38 and 40, together with their corresponding top and bottom flaps, may then be positioned with one edge portion of each of the end walls and corresponding top and bottom flaps, folded, at score line 50, around the outer edge and bottom surfaces of the outermost skids 42, and with the remaining portions of each end wall and corresponding flaps being folded inwardly at joint formed by the score line 52, to form a pleat, so that the container may be fully knocked-down and collapsed in a compact form, having relatively small planar dimensions, as seen in FIG. 7 of the drawings.

It is to be understood that the carton end walls and corresponding flaps may be initially provided with either or both sets of score lines to permit knocking-down the container in the form desired. It is also to be understood that the containers, depending upon the nature of their use, may be made without any top flaps.

When the container is to be set-up or erected for use it is first restored to a tubular form which is quickly and simply accomplished by unfolding the pleated portions of the knocked-down form of carton shown in FIGS. 4 and 5, and the bottom end flaps and bottom walls positioned at right angles to the body and with the bottom wall 28, positioned with the skids 42, as seen in FIG. 1. In the knock-down form of container represented in FIG. 7, the carton is first caused to assume a tubular form and the bottom walls and flaps are withdrawn and positioned at right angles to the body with the bottom wall 28, carrying the skid blocks 42, positioned externally of the body.

When setting up the container, after restoring it to tubular form, as seen in FIG. 8, it is preferred that the two bottom end flaps 25 and 26 be first folded and positioned across the bottom opening of the container, at approximately right angles to their respective end walls 38 and 40 and the bottom side flap or wall 27, is then folded against the two bottom end flaps, and the outer or bottom wall 28, provided with skids, is then seated against the other bottom wall 27, as seen in FIG. 2 of the drawings.

It will be noted that the sole connection between the bottom wall 28, carrying the skids 42, to the body of the container is along score line, 36, to the lower edge of the body side wall 41. This connection is deemed to be adequate for practically all uses since the container, when filled, will transmit its load directly to the skids and there will be no tendency to shift the body relative to the skids. Moreover, the container, when loaded, will in practically all instances, be moved by the fork of a fork lift truck. However, if desired, additional connection of the bottom wall 28, to the body may be provided, such as by the use of reinforcing adhesive tape.

I claim:

1. A unitary, knock-down type pallet pack container, comprising a body formed of sheet material having a plurality of flexibly interconnected side and end walls, a bottom wall flexibly interconnected at one marginal edge to the lower edge of one of said walls, and a plu-

rality of rows of non-collapsible, solid skids fixedly secured to the underside of said bottom wall, said rows of skids being suitably spaced apart for accommodating a fork of a lift truck there-between, said container, by reason of the flexible interconnections of its walls, being collapsible for storage in a flattened compact form with said skids attached thereto.

2. A container as set forth in claim 1, characterized by having bottom flaps flexibly interconnected at one edge to other of said walls and adapted to be positioned across the entire opening of the container above said bottom wall to provide a multi-ply reinforced bottom for the container.

3. A container as set forth in claim 1, wherein the container may be collapsed in knocked-down form with the bottom wall provided with said skids positioned in parallel extended relation to the side wall to which it is connected, whereby a plurality of said knocked-down containers may be stacked one upon the other with alternate containers disposed in opposite and reversed relation to a container immediately therebelow.

4. A container as set forth in claim 1, characterized by said end walls each being provided with one or more hinge joints intermediate the width thereof and approximately parallel to the connections with the side walls, whereby said container may be collapsed into flattened, compact form with the portions at opposite sides of the hinge joints being folded inwardly and the bottom wall provided with said skids disposed in a plane parallel to the side wall to which it is connected.

5. In a container as defined in claim 4, wherein the bottom wall provided with said skids mounted thereon may be folded inside the container in direct contact with the side wall to which it is connected.

6. A container as set forth in claim 1, characterized by said end walls each being provided with a hinge joint at approximately midway of the width thereof and extending approximately parallel to the connections with the side walls, whereby said container may be collapsed into flattened, compact form with the portions at opposite sides of the hinge joint being folded inwardly and the bottom wall with said skid mounted thereon being disposed in extended parallel relation to the side wall to which it is connected.

7. A container as defined in claim 1, wherein said container is formed of corrugated paper board and the end walls each being provided with score lines to form a hinge joint located approximately midway of the width thereof and extending approximately parallel to the connections with the side walls, whereby said container may be collapsed into flattened, compact form with the portions of the end walls on opposite sides of the score lines being folded inwardly and the bottom wall disposed in a plane parallel to the side wall to which it is connected.

8. A container as set forth in claim 2, wherein said container is formed of corrugated paper board and the bottom flaps, corresponding to said other of said end walls, each being provided with score lines to form a hinge joint located approximately midway of the width thereof and extending approximately parallel to the connections between the end walls and the side walls, whereby said container, when the flaps are folded inwardly against the inside surface of the end walls, may be collapsed into flattened, compact form, so that portions of said end walls and their corresponding bottom

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flaps, opposite the hinge joints, may be folded inwardly to permit positioning the opposite side walls in close relation and with the bottom wall provided with said skids disposed in a plane parallel to the side wall to which it is connected.

9. A container as defined in claim 7, characterized by the provision of two sets of score lines in each of said end walls, approximately parallel to and spaced from the interconnection with the side wall forming an extension of the bottom wall, thereby preparatory to collapsing the container, said bottom wall provided with

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said skids may be first folded into the body of the container, in direct contact with the side wall to which it is connected, and one set of score lines permitting the portions of the end walls, adjacent the side walls, to be wrapped around the outermost portion of said skids and the other set of score lines permitting other portions of the end walls to be folded inwardly, whereby in collapsed form the container occupies a relatively small planar area with the bottoms of the skids being covered by the opposite side wall of the container.

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