

[54] **PALLET TYPE SHIPPING CONTAINER**

[72] Inventor: **Roger A. Tucker**, Blue Island, Ill.
 [73] Assignee: **The Mead Corporation**, Dayton, Ohio
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 [51] Int. Cl. **B65d 13/04, B65d 19/20, B65d 85/64**
 [58] Field of Search **206/65 B, 60 A; 229/23 R, 23 A, 229/23 B, 23 C; 220/4 R, 4 A, 75, 41; 217/65**

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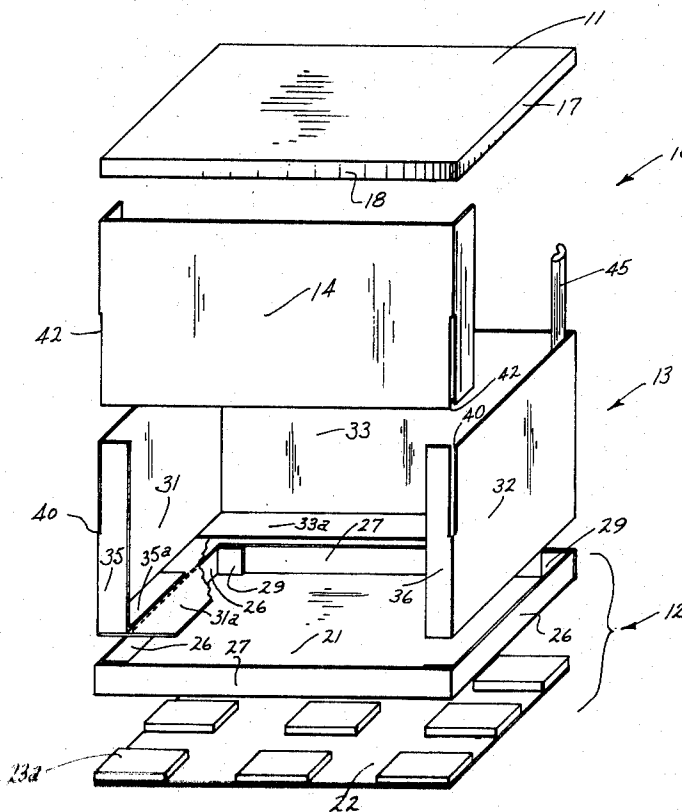
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Primary Examiner—Joseph R. Leclair
Assistant Examiner—Stephen Marcus
Attorney—Irvin V. Gleim and Edward M. Tritle

[57] **ABSTRACT**

A pallet type light weight container for maximized utilization of available cargo space in freighter aircraft or other carriers includes provision for ease in loading and/or unloading of articles into and/or from the container with the front and top thereof open. The container requires on other fastening means except for customary tapes which are tightened and secured around the container after it has been erected and filled with articles to be shipped. The container can be shipped and/or stored in knocked-down form for assembly by the user and comprises essentially flat basic elements formed from flat sheets or blanks of material such as corrugated paper board or the like which are bent to form, respectively, bottom and top portions, a body portion, and a front panel readily detachably securable to the body portion. The container includes the provision of resilient elements in the bottom portion, and optionally at the corners of the container, for protectively cushioning articles within the container against impact loads and/or against compressive stresses to which the container may be subjected in connection with its shipment, handling, and/or storage.

2 Claims, 7 Drawing Figures



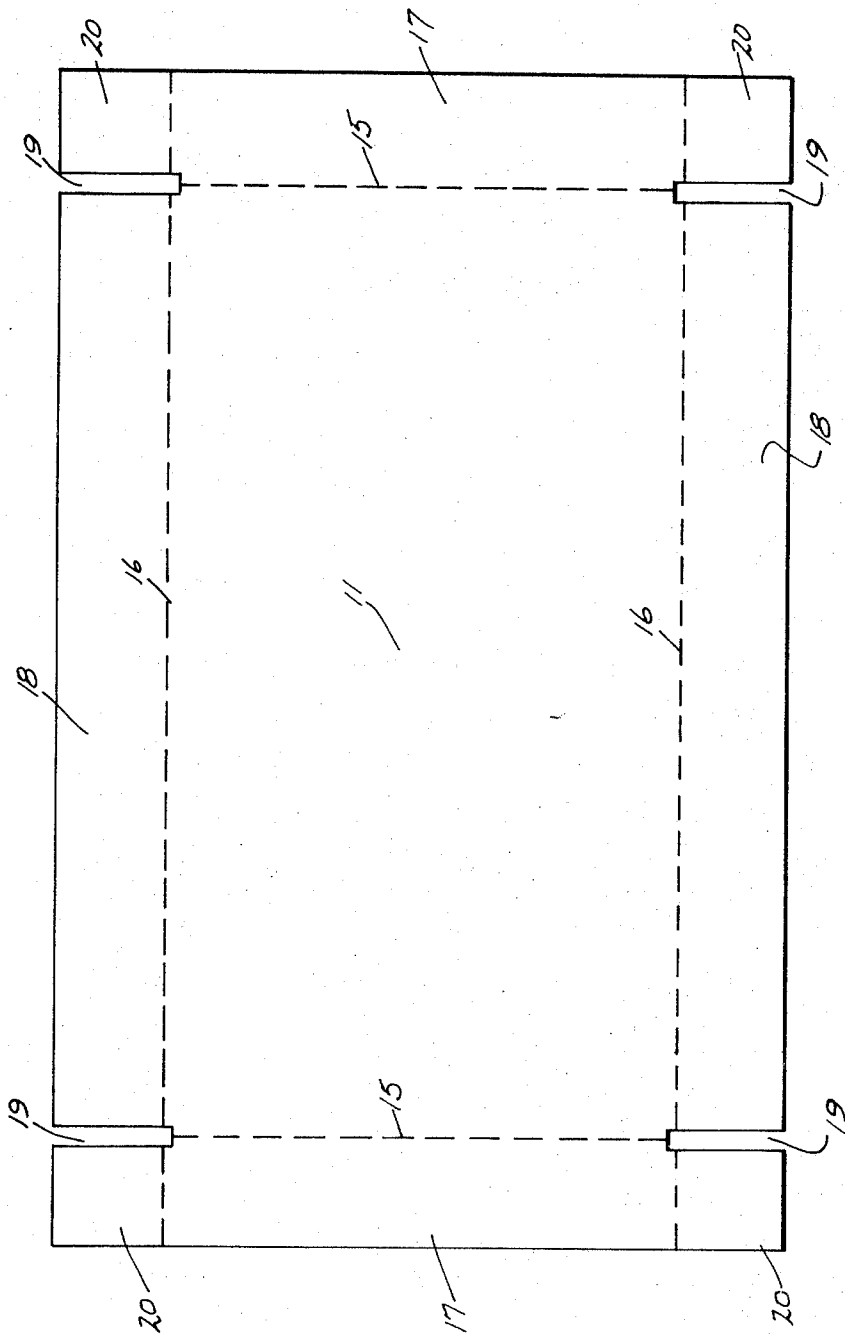


Fig 2

INVENTOR.
ROGER A. TUCKER
BY *Levin V. Gleim and Edward M. Jittle*

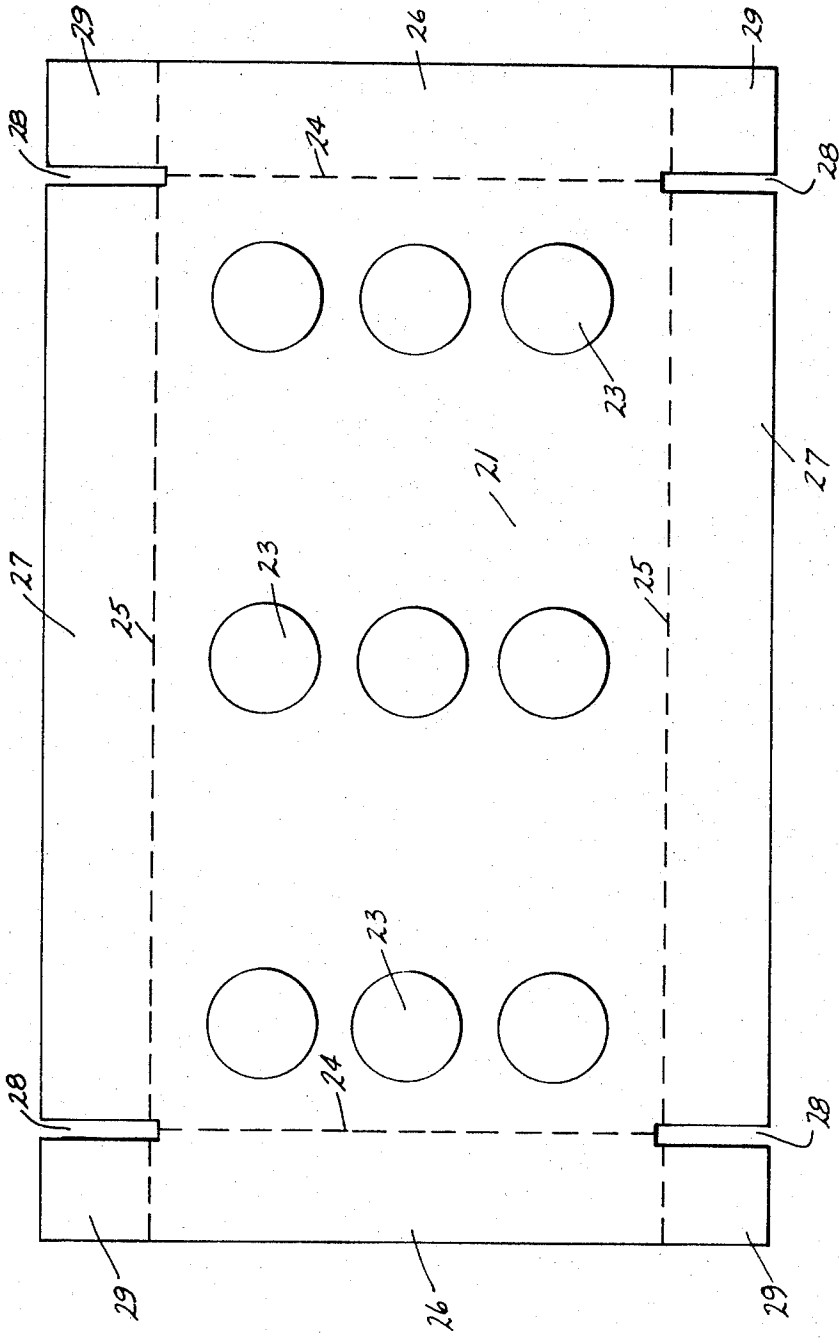


Fig. 3

INVENTOR,
ROGER A. TUCKER
BY *Justin V. Geism and*
Edward M. Jittle

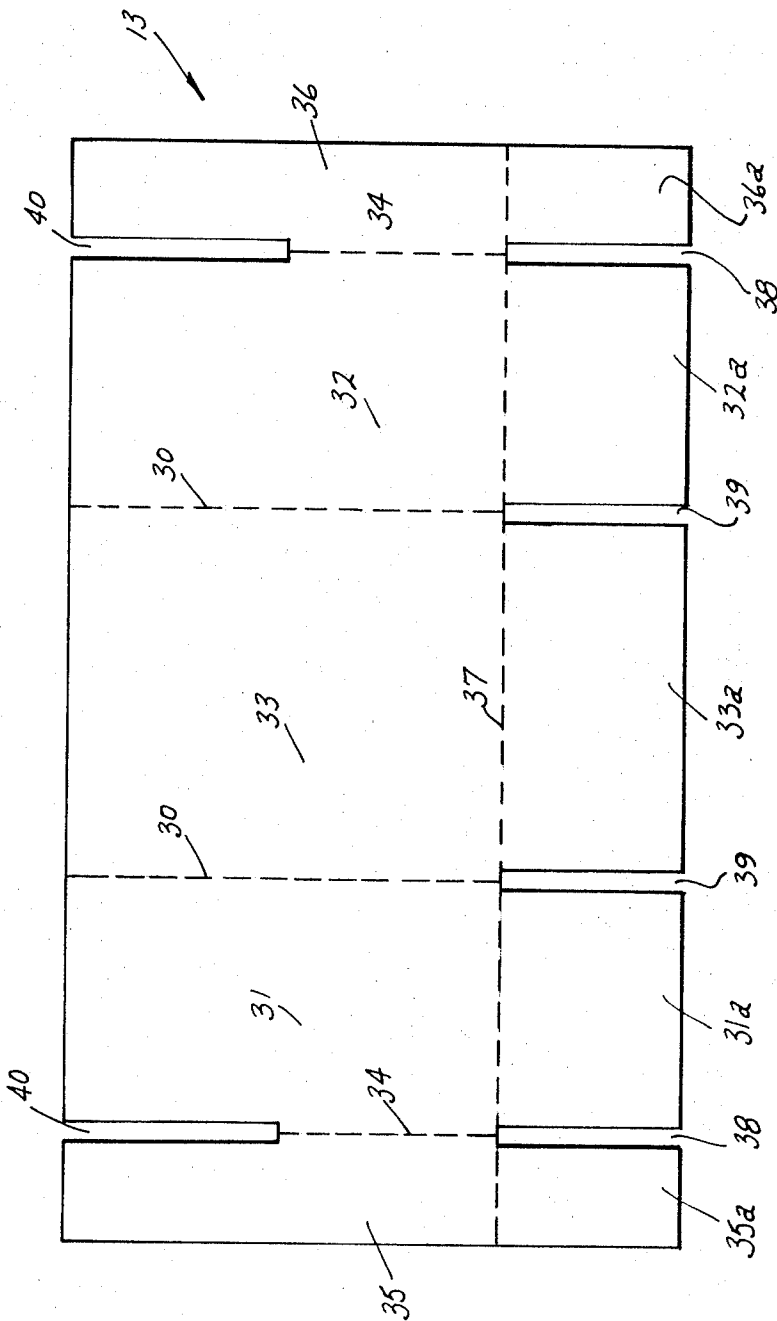


Fig. 4

INVENTOR.
ROGER A. TUCKER
BY *Linin V. Gleim and Edward M. Dittle*

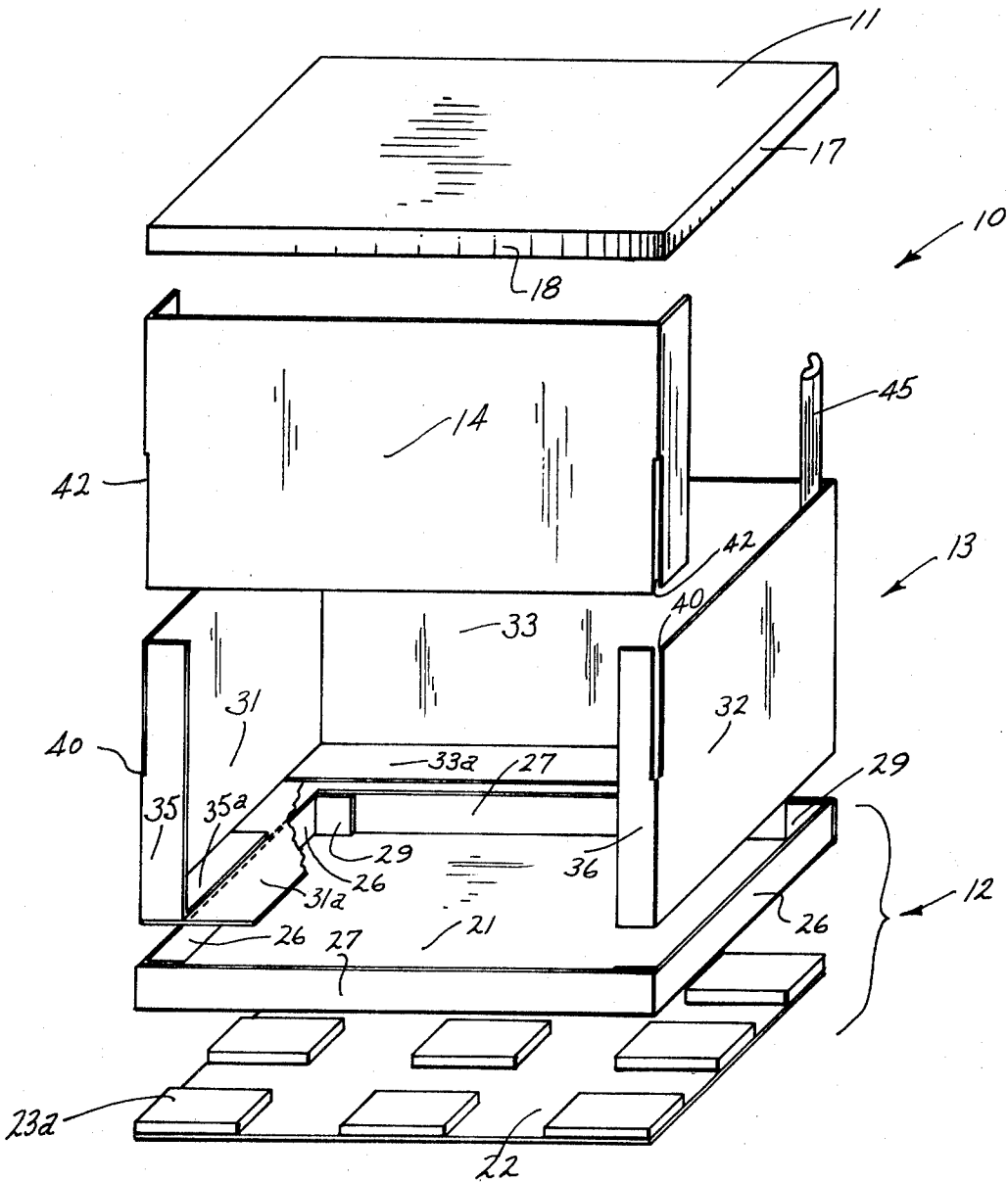


Fig. 6

INVENTOR.
ROGER A. TUCKER
BY *Irvin V. Gleim and*
Edward M. Tittle

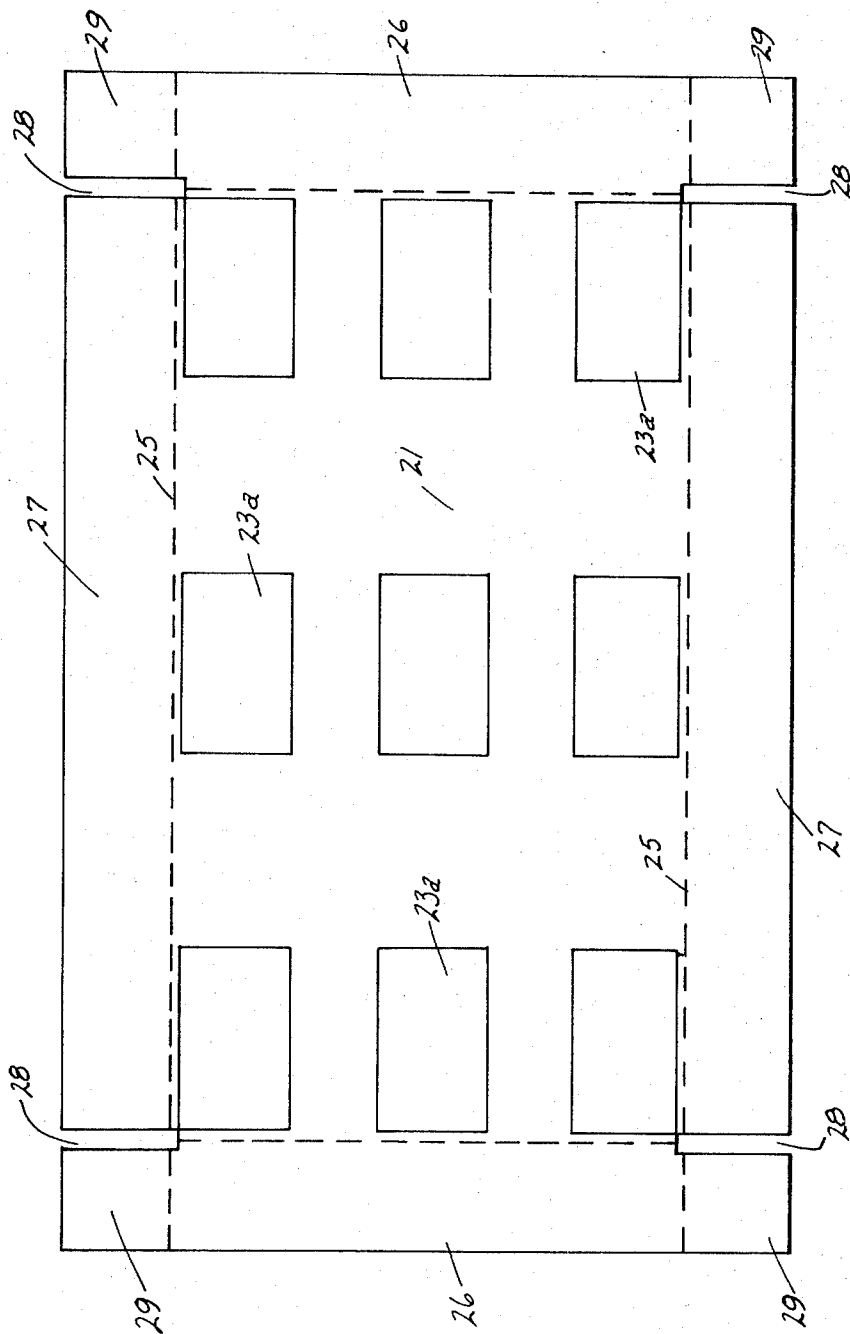


Fig. 7

INVENTOR.
ROGER A. TUCKER
BY *Irvin V. Gleim and Edward M. Tille*

PALLET TYPE SHIPPING CONTAINER

BACKGROUND, SUMMARY AND OBJECTS

The present invention relates to containers, and more particularly to pallet type containers.

Bulk-packed shipments, or the shipment of a plurality of smaller articles or cartons in a larger pallet type container have proved to be both convenient and economical. Freight carriers save time and labor in handling, loading, and unloading such unitized loading which also achieves better utilization of available cargo space. These savings and advantages to the carriers result in benefits to the shipper in the form of reduced freight rates applicable to such loading or containerized freight shipments, particularly if the container dimensions conform to size specifications recommended by the carriers. Accordingly, an object of the present invention is to provide an improved pallet type container.

Another object is to provide an improved container that is strong, light in weight and suitable for air freight shipment, is easy and economical to manufacture, is economical in use of material with a minimum of waste material, and is expendable and does not require assembly by the container manufacturer.

Still another object is to provide an improved container that can be supplied to a shipper in knocked-down or kit form, employs basic components which are flat and are thereby easily shipped and stored and require minimum shipping and/or storage space, and can be readily assembled for use by the shipper without requiring specialized assembly equipment or specially trained personnel.

A further object is to provide an improved container for protectively cushioning articles therein against impact and/or compression loads to which the container may be subjected during shipment, handling, and/or storage thereof.

Still another object of the invention is to provide an improved container having basic components which do not require the use of securing means or fasteners other than tapes which are tightened and secured around the container after it has been loaded, and which provide for ease in loading and/or unloading with the front and top of the container open.

Additional objects and advantages of the present invention will become apparent from the following description taken in connection with the accompanying drawings in which:

FIG. 1 is a perspective view of the container embodying the present invention and showing the front panel partially assembled;

FIG. 2 is a view showing a blank from which the top is formed;

FIG. 3 is a view showing a blank from which the bottom tray is formed and showing pallet feet attached to the tray;

FIG. 4 is a view showing a blank from which the body portion is formed;

FIG. 5 is a view showing a blank from which the front panel is formed;

FIG. 6 is an exploded view illustrating how the several components of the container are assembled; and

FIG. 7 is a view showing a modification of FIG. 3.

Referring to the drawings, containers embodying the present invention are constructed of three basic elements, that is, top, bottom and body portions, which are essentially formed from flat, relatively rectangular sheets or panels of any suitable material such as corrugated board or the like.

Referring to FIG. 1, such a container is indicated generally at 10. The container comprises a top 11, a bottom indicated generally at 12, a body portion indicated generally at 13, and a separable front panel 14.

As illustrated in FIG. 2, the top is formed from a blank or sheet of suitable dimensions responding to the desired shape and dimensions of the container 10. The blank is scored along parallel score lines 15 and also along parallel score lines 16 to define side and end flanges 17, 18, respectively. The blank is notched or severed at 19 along score lines 15 and thereby define flaps 20 at each of the four corners of the blank.

The bottom tray 12 comprises a tray portion 21, a bottom panel 22, with a plurality of pallet feet 23 disposed between tray 21 and bottom panel 22. As illustrated in FIG. 3, the bottom tray portion 21 is formed from a blank of suitable dimensions and corresponding generally to those of the top 11. The blank from which tray portion 21 is formed is scored along parallel score lines 24 and also along parallel lines 25 to define end flanges 26 and side flanges 27. The blank or sheet 21 is severed or notched at 28 along score lines 24 thereby defining a flap 29 at each of the four corners of the blank.

The bottom tray portion 21 may include pallet feet 23 of desired shape and suitable material secured to the tray portion by any convenient means, as for example, by glue. As illustrated in FIG. 3, the pallet feet 23 may be of circular cross section and formed of any suitable material as for example, corrugated board. Alternatively, as illustrated in FIGS. 6 and 7, the pallet feet 23a may be square or rectangular in cross section and may be formed of a molded plastic material such as polystyrene.

As shown in FIG. 4, the body portion 13 is formed from a rectangular sheet of blank preferably having a length substantially equal to the sum of the length of the container plus twice the width of the container plus twice the width of an anchor flap provided at each end thereof. The blank or sheet has a width corresponding to the desired height of the container plus the desired width of anchor flaps described hereinafter. The blank or sheet is scored by parallel score lines 30 to divide the sheet into end panels 31, 32 with side panel 33 therebetween. The blank is also scored along parallel score lines 34 to define anchor flaps 35, 36 at the opposite ends of the body portion 13.

The sheet or blank is also scored along score line 37 and is severed or notched at 38 along score lines 34 and is also severed or notched at 39 along score lines 30 to define anchoring and reinforcing flaps 31a, 32a, 33a, 35a, and 36a. The blank is further severed or notched at 40 along score lines 34 for a purpose which will become apparent as the description proceeds.

The blank from which the separable front panel 14 is formed is shown in FIG. 5. The sheet or blank is generally rectangular and preferably is of a length corresponding to the desired length of the container plus the width of anchoring flaps which are provided at each end of the blank. The blank is scored along parallel score lines 41 and is severed or notched at 42 along score lines 41 to define end flaps 43, 44 at opposite ends of panel 14.

If desired, corner posts 45 may be provided to strengthen the corners of the container 10 to provide compressive strength and/or cushioning for articles within the container and also to serve as reinforcing corner posts to strengthen the corners of the container against impact compressive forces which the container may be subjected. If provided, such corner posts may be constructed in accordance with U.S. Pat. No. 3,129,868, patented Apr. 21, 1964.

Use and method of assembly of the container will be evident from the foregoing description. The pallet feet 23 or 23a are glued or other wise secured to the bottom panel 22 and to tray panel 21, as illustrated in FIGS. 1, 3, 6 and 7. The end and side flanges 26, 27, and corner flaps 29 are folded inwardly and upwardly to form a continuous upstanding flange at the periphery of tray panel 21 as is best shown in FIG. 6.

Body portion 13 is then formed into a generally U-shaped configuration as best shown in FIG. 6 by folding the flap blank along score lines 30, 34 and by also folding along score line 37 so that the anchoring and reinforcing flaps 31a, 32a, 33a, 35a, and 36a project inwardly and form bottom reinforcements adapted to be supported by bottom tray 21. The body portion 13 is then inserted into the space enclosed by flanges 26, 27 of bottom tray 21 as is best shown in FIGS. 1 and 6. At this stage of assembly, the container 10 is open at the top and at the front so that articles to be shipped can be easily loaded thereinto. If corner posts 45 are desired, they are inserted at the corners of the then open container prior to loading the articles thereinto.

As articles are loaded into the container for shipment, they are arranged in layers and the bottom layer bears upon flaps 31a, 32a, 33a, 35a, and 36a of the body portion, which flaps have previously been folded inwardly and are then supported upon the horizontal surface of bottom tray 21. Thus, the weight of articles placed within the container and bearing on these flaps, securely anchors the body portion 13 and progressively stiffens it as the container is filled. After the container has been filled, the body portion is closed by securing the separable front panel 14 to the body portion. In accordance with the present invention this is easily accomplished by aligning notched portions 42 of panel 14 with notched portions 40 in the body portion, as shown in FIG. 6. The panel 14 is then pushed downwardly, as indicated in FIG. 1, until the lower edge contacts tray 21. Body portion 13 and panel 14 then constitute a continuous enclosing structure surrounding all sides of articles then loaded into the container.

The top 11 is then formed from the blank shown in FIG. 2 by folding the blank along score lines 15, 16 to form downwardly extending end and side flanges 17, 18, respectively, with the corner flaps 20 extending generally in the direction of the side flanges 18. The top is then assembled onto the previously loaded container with its downturned end and side flanges 17, 18 encompassing the upper edge of body portion 13 and panel 14. The assembly and loading of the container is now complete except for the installation of tapes or bands which are customarily employed to secure the container during shipment.

Such tapes form no part of the present invention and, accordingly, are not shown. It will be understood, however, that any of the known or standard methods of taping may be employed, using tapes made of metal, fiber or plastic material, and secured at their ends in any known fashion, as by means of metal clamps or clips applied by any of the customarily employed tensioning devices. Such tapes may be passed through the space between the bottom panel 22 and bottom tray 21 between the pallet feet 23 and then brought upwardly along the sides of the body portion and/or front panel and across top 11 and are then secured, using as many or as few tapes as may be desired. Similarly, one or more tapes may be passed between bottom panel 22 and tray 21 and upwardly along end panels 31, 32, and across top 11 and are then suitably secured.

It will be understood that the arrangement and spacing between individual pallet feet 23 may be varied to suit individual requirements. In general, such feet will be spaced apart and the spacing between bottom tray 21 and bottom panel 22 will be sufficient to permit the entry of the tines of a fork truck, but otherwise, the arrangement of the pallet feet may be as desired in order to provide adequate support and load distribution. Also, containers embodying the present invention have the additional advantage, particularly when pallet feet 23 are constructed of resilient material such as corrugated board, of providing added protection for the contents of such containers against high compressive loading which may result from impact or rough handling during shipment.

Containers embodying the present invention may be made in any desired size and shape including more or less standardized dimensions recommended by the freight carriers to achieve maximum utilization of the cubic capacity of aircraft used by such carriers, thus enabling the shipper to obtain the benefit of incentive discount freight rates offered by such carriers when the recommended dimensions and sizes are employed. Additionally, it will be apparent that containers embodying the present invention are made of essentially rectangular and/or square sheet or blank material and are simple to manufacture as well as being economical in use of such material. The readily detachable separable front panel is of great assistance both in the loading and unloading of the container. Waste material is minimized since the sheets or blanks are not cut into complicated shapes and are merely scored and notched as indicated in the foregoing description. No assembly of parts is required to be done by the container manufacturer and the sheets can be stacked and shipped in flat condition, with minimum shipping cost and storage space require-

ments.

Accordingly, it will be apparent that containers embodying the present invention employ simple individual components that can be shipped and/or stored flat and can be easily assembled to coact synergistically to enclose a unitized load which includes a plurality of individual articles without requiring fastening means other than customary securing tapes, is self-supporting when empty and is secured and progressively stiffened and strengthened during the loading of said individual articles into the partially assembled container, provides for easy loading and unloading, as well as, readily detachably connected load-encompassing body portions, together with bottom structure that combines resilience and strength features to simultaneously perform the dual functions of protective cushioning of the container structure and its contents with encasement and support of such contents.

While particular embodiments of the invention have been illustrated and described, it will be obvious to those skilled in the art that various changes and modifications may be made without departing from the invention and it is intended in the appended claims to cover all such changes and modifications that fall within the true spirit and scope of the invention.

What is claimed:

1. A pallet type shipping container for unit loading with and shipment of a plurality of individual articles comprising
 - a body portion,
 - a separable panel readily detachably secured to said body portion and forming therewith, when secured thereto, continuous structure for encompassing sides and ends of said articles,
 - a top, and
 - a resilient bottom for protectively cushioning said articles against impact loads and compressive stresses to which said container and said articles may be subjected during handling and storage thereof, and
 - means for readily detachably connecting said panel to said body portion, said means including
 - notch means spaced apart from the opposite ends of said panel and extending upwardly from the lower edge thereof but terminating short of the upper edge thereof, and
 - second notch means spaced apart from the opposite ends of said body portion and extending downwardly from the upper edge thereof but terminating short of the lower edge thereof.
2. A pallet type shipping container for unit loading with and shipment of a plurality of individual articles comprising
 - a body portion,
 - a separable panel readily detachably secured to said body portion and forming therewith, when secured thereto, continuous structure for encompassing sides and ends of said articles,
 - a top, and
 - a resilient bottom for protectively cushioning said articles against impact loads and compressive stresses to which said container and said articles may be subjected during handling and storage thereof, wherein said container is in knocked-down or kit form for shipment and storage of said container and for easy assembly for use comprising flat generally rectangular sheets for respectively forming said body portion, said panel, said top, and a bottom tray, said body portion sheet being scored and defining two end panels with a side panel therebetween and flaps at each end thereof and being further scored and defining bottom reinforcing and anchoring flaps, said sheet being notched between adjacent reinforcing and anchoring flaps, said panel sheet being scored and defining flaps at each end thereof with said panel therebetween, and said top sheet and said bottom tray sheet each being scored and notched to define side and end flanges foldable downwardly from said top and upwardly from said bottom tray for receiving inside said flanges said body portion and said separable panel.

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