Oct. 16, 1956 J. C. D'ESPOSITO 2,766,923

CONTAINER WITH REINFORCED CLOSURE

Filed Oct. 19, 1953 2 Sheets-Sheet 1

Fig. 1

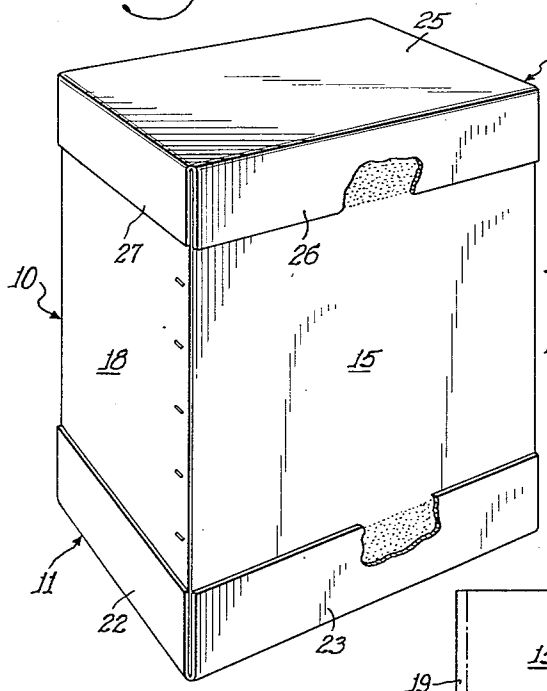


Fig. 2

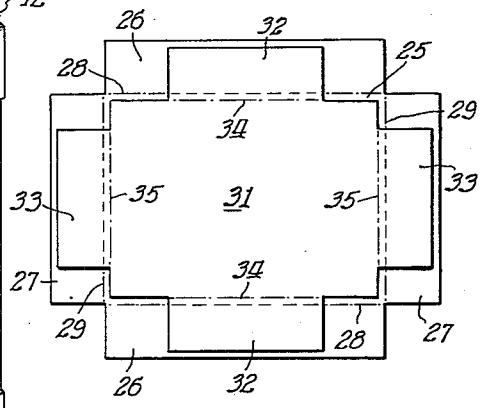


Fig. 3

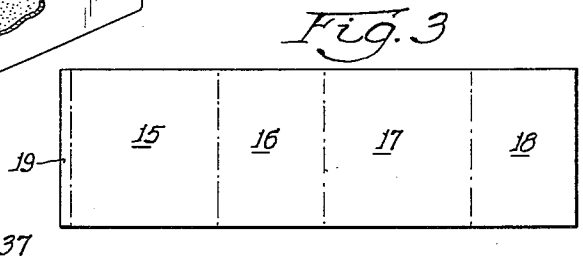


Fig. 5

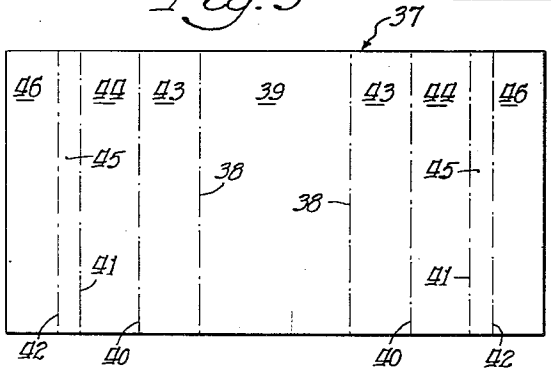


Fig. 4

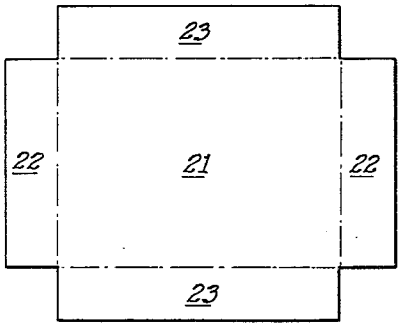
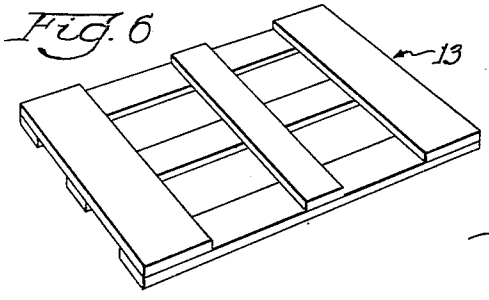


Fig. 6



Inventor:
Julian C. D'Esposito
By: E. W. Wagoneller
Atty.

Oct. 16, 1956 J. C. D'ESPOSITO 2,766,923

CONTAINER WITH REINFORCED CLOSURE

Filed Oct. 19, 1953 2 Sheets-Sheet 2

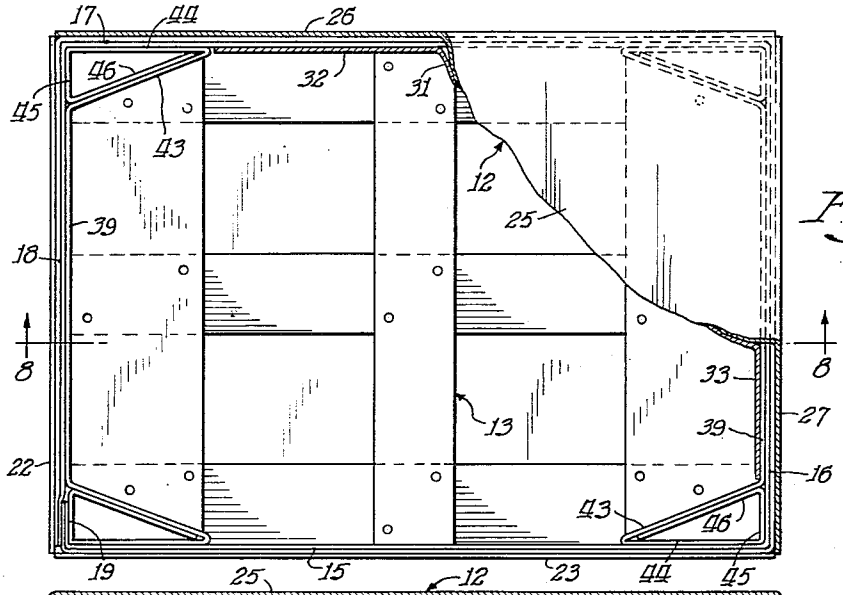


Fig. 7

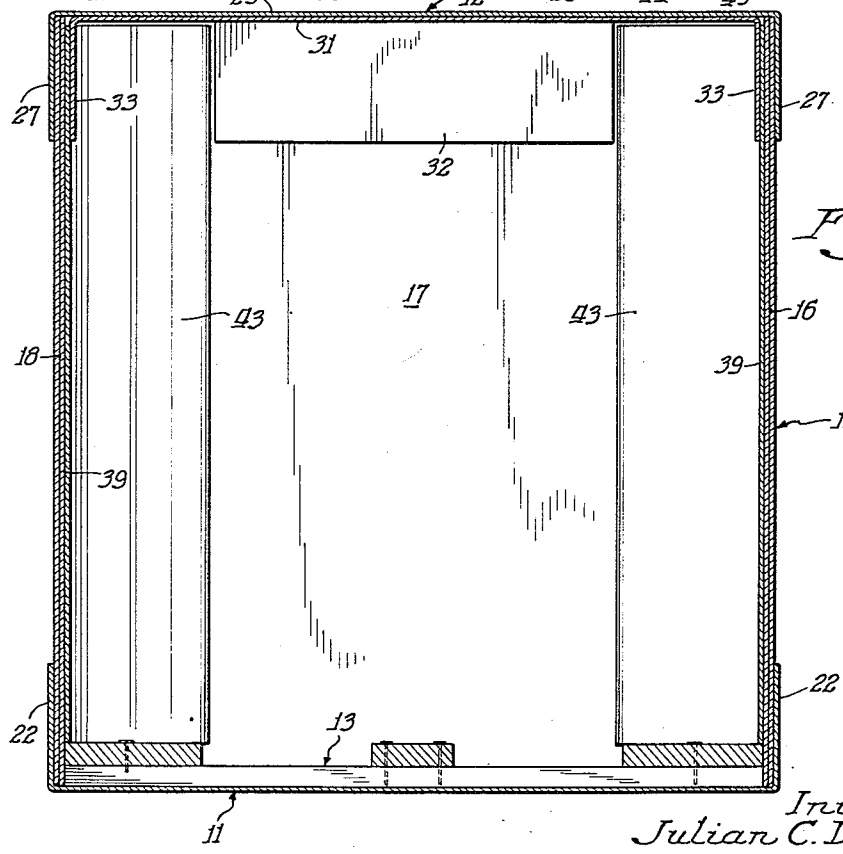


Fig. 8

Inventor:
Julian C. D'Esposito
By: E. A. Wagoneller
Atty.

United States Patent Office 2,766,923 Patented Oct. 16, 1956

2,766,923

CONTAINER WITH REINFORCED CLOSURE

Julian C. D'Esposito, Wilmette, Ill., assignor to Container Corporation of America, Chicago, Ill., a corporation of Delaware

Application October 19, 1953, Serial No. 386,699

2 Claims. (Cl. 229—23)

The present invention relates to shipping containers made of paperboard designed for heavy duty, such as the packaging of refrigerators, washers, dryers, electric ranges and similar large, heavy articles.

One object of the invention is to provide a strong, efficient and economical top closure construction for large, heavy duty containers, the top construction being capable of withstanding external downward pressure, as in the piling of loaded containers one upon the other or to withstand the weight of workmen walking upon the tops of loaded containers placed closely together, as when stored in a warehouse.

Another object is to provide a reinforced top closure having an efficient arrangement of depending flap portions which will effectively embrace the vertical side walls of a tubular body member and tend to maintain the side walls in a straight, undeflected condition to enable such walls to carry their intended vertical load.

A further object is to provide a container closure having flaps arranged both inside and outside the walls of a tubular body portion and in opposed relation to each other whereby adhesive attachment of the tubular body to the closure is facilitated.

A still further object is to provide a form of closure for a container having a tubular body portion, in which the closure is adapted to cooperate with corner reinforcing members located inside the vertical corners of the tubular body portion.

Other and more specific objects will become apparent in the description which follows and will be pointed out in the appended claims.

In the drawings:

Fig. 1 is a perspective view of a heavy duty container constructed in accordance with the present invention;

Fig. 2 is a plan view of the cover portion of the container with the flanges of the cover extended;

Fig. 3 is a plan view, on a reduced scale, of the blank from which the body portion of the container is constructed;

Fig. 4 is a plan view of a blank which forms the bottom panel of the container;

Fig. 5 is a plan view of a blank for forming vertical interior corner reinforcement parts for the container;

Fig. 6 is a perspective view of an interior wood platform which is adapted to support the contained article;

Fig. 7 is a plan view of the container with a portion of the cover broken away showing the corner reinforcing parts in place; and

Fig. 8 is a vertical sectional view, taken on line 8—8 of Fig. 7, further illustrating the corner reinforcement parts and the manner in which an attaching flap on the closure fits between two reinforcement parts.

The container as herein disclosed is preferably formed of heavy corrugated paperboard or heavy bendable, solid fibreboard to protect effectively rather bulky and heavy articles packed therein during storage and shipment. The vertical walls of the container are preferably made from

a single blank secured in the form of a tube. The bottom closure is preferably of strong heavy paperboard secured to the body member by suitable attaching flaps. A frame of wood or other suitable material is employed to give rigid bottom support to the packed article. A double-thickness top closure is preferably employed having flaps to engage each of the four walls both inside and out, and interior corner elements are preferably provided to reinforce the container and give it vertical compression strength.

Referring in detail to the drawings, the container comprises a body member 10, bottom closure 11 and top closure 12. An article supporting frame 13 is provided to rest upon the interior of the bottom closure. The tubular body member is preferably made of a blank of heavy paperboard. This blank is illustrated on a reduced scale in Fig. 3, and comprises panels 15, 16, 17 and 18 with a short attaching flap 19 on panel 15 arranged for attachment to the free edge of panel 18. In the present instance the body member is formed from double wall corrugated paperboard as indicated in Figs. 7 and 8.

The bottom closure 10 is preferably made from a single blank, as shown in Fig. 4, and comprises a main panel 21 with attaching flaps 22, 22, and 23, 23, arranged to be secured on the outside surfaces of the walls of the body member.

The top closure is preferably formed from two superposed blanks of heavy corrugated or solid fibre paperboard secured together in any desired manner but preferably glued to provide a uniformly strong bond throughout the overlapping surfaces of panels 25 and 31 as shown in Fig. 2. The upper blank comprises a main panel 25 with attaching flaps 26, 26 and 27, 27 extending therefrom and defined from the main panel by fold or hinge lines 28 and 29. The spacing of these fold or hinge lines conforms to the outer dimensions of the erected tubular body member so that the flaps 26 and 27 can be folded down to lie snug and flat against the upper exterior portions of the tubular body member walls.

The lower blank of the top closure, as herein shown, comprises a main panel 31 from which extend flaps 32, 32 and 33, 33 defined from the main panel by fold or hinge lines 34 and 35. The spacing of these fold or hinge lines is preferably such that, when flaps 32 and 33 are folded down at a right angle to the main panel 31, the outer surfaces of the flaps 32 and 33 will be substantially accurately disposed flatwise on the adjacent inner wall surfaces of the tubular body member. Fig. 8 illustrates this arrangement in which the upper end portions of the body member walls are snugly embraced between the inner and outer attaching flaps.

For the purpose of giving additional strength to the container corner reinforcing members may be employed. In the present instance these members are in the shape of hollow triangular tubes or posts and they are preferably formed from a single sheet of paperboard providing a central flat panel extending between two tubular reinforcing members. Referring to Figs. 5, 7 and 8 the corner members are made from a rectangular blank 37 having fold lines 38, 38 which define the limits of the flat central panel 39; and fold lines 40, 41 and 42 at each end of the blank, to provide at each end of the blank a series of panels 43, 44, 45 and 46. Each group of these latter panels provides the three sides of the triangular reinforcing member with a fourth panel 46 folded to lie against the inner face of panel 43.

The tubular members are of such length that they abut the under side of the main panel 31 of the underlying closure portion.

It is to be noted that the panel portion 39 extending between the tubular corner reinforcing members, when

in place, will lie flat against the inner surface of each end wall **16** and **18**, thereby adding one layer of paperboard to such end walls. Thus the side walls of the body member are illustrated as comprising two thicknesses and the end walls three thicknesses.

In assembling the container and packaging the article therein, a convenient procedure is to place the bottom closure panel flat on a floor or other supporting surface, then place the wood frame **13** thereon and secure the article thereto. The tubular body member is next slipped over the article until it comes to rest on the bottom closure. Suitable adhesive is then applied to the flaps **22** and **23** and these flaps are then folded upwardly against the adjacent walls of the body member and held until the adhesive has set.

The assembly is now ready to receive the tubular corner reinforcing members which are then slipped in place between the article being packaged and the walls of the container. The panel **39** extending between the corner members is arranged to lie flat against its adjacent end wall. The top closure members with superposed parts **25** and **31** previously assembled together, preferably by glue or the like, is then ready to be assembled onto the tubular body member. Flaps **32** and **33** are first folded at right angles to their attached main panel and the closure is then placed in closing position on the body member. The freshly bent over flaps **32** and **33** will tend to press with substantial force against the inner wall surfaces of the body member due to the resilience of the heavy paperboard. This pressure aids in providing correct positioning of the side walls of the body tube as well an assisting in the securing of flaps **26** and **27** as described below.

As soon as the closure has been placed on the body member with flaps **32** and **33** in place adhesive will be applied to the under surfaces of flaps **26** and **27** and these flaps will be folded down and held against the exterior surfaces of the body member walls until the adhesive has set. An important consideration is that the outward pressure applied by the internal flaps **32** and **33** provides a firm backing for the inward pressure which may be applied by any suitable means against the down-turned external flaps **26** and **27**. The container as thus assembled and packed is ready for shipment.

From the foregoing it is apparent that an efficient form of heavy duty container is provided which may, if desired, be assembled entirely by hand or by the use of very simple equipment as it is necessary only to provide means for holding the external flaps on the top and bottom closures against the body member side walls until the adhesive applied to the flaps has set. Obviously semi-automatic machinery may be employed to reduce the hand labor now connected with such packaging to a minimum. The provision of the internal flaps on the top closure assures that there will be substantially no tendency for the side walls to buckle or become deflected from a flat condition. By keeping the walls straight and true they will function to sustain the weight or other compression forces which they were designed to bear.

While the present description sets forth a preferred embodiment of the invention, various changes may be made in the construction without departing from the spirit of the invention, and it is therefore desired that the present embodiment be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

I claim:

1. In a heavy duty container of the character described, a hollow body member having a plurality of sides providing a tube of substantially rectangular cross section, a closure member for one end of said body member, and a pair of body and closure reinforcing members, said closure member comprising an outer and an inner sheet of relatively heavy paperboard interconnected with one another, each closure member sheet including a main panel of substantially rectangular shape corresponding to the cross sectional shape of the body member, each edge of each of said main panels having an integrally connected flap extending therefrom in the same general direction from corresponding sides and into overlapping relation with a marginal portion of said end of the body member, the flaps of the inner sheet being disposed against the relatively adjacent inner faces of the respectively corresponding sides of the body member at such end and the flaps of the outer sheet being disposed against the relatively adjacent outer faces of the respectively corresponding sides of the body member at such end, each of said reinforcing members comprising a generally rectangular sheet of paperboard having a portion at each of opposite sides folded into a columnar tube form extending substantially parallel and in spaced relation to one another and to the columns of the other sheet and from one end of the body member to the other end thereof internally of the body member, the columns of each sheet being disposed in the adjacent corners formed by the juncture of a pair of opposite sides with an intermediate side of the bottom member, areas of each column adjacent to the flaps of the inner sheet of the closure member being disposed substantially in face-to-face abutment relation against the inner faces of the adjacent side walls of the body member in the corners at said end, portions of the flaps of the inner sheet of the closure member being disposed between the columns with the end edges of such flaps disposed adjacent to the columns.

2. The container construction defined in claim 1 in which the flaps of the outer sheet of the closure member extend substantially from corner edge to corner edge of the body member and are firmly secured to the body member

References Cited in the file of this patent

UNITED STATES PATENTS

1,430,149	Bliss	Sept. 26, 1922
1,979,956	Boeye	Nov. 6, 1934
2,013,346	Gomes	Sept. 3, 1935
2,044,048	Boeye	June 16, 1936
2,230,866	Krout	Feb. 4, 1941
2,299,355	Stolpman	Oct. 20, 1942
2,378,932	Kirby	June 26, 1945