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[56]

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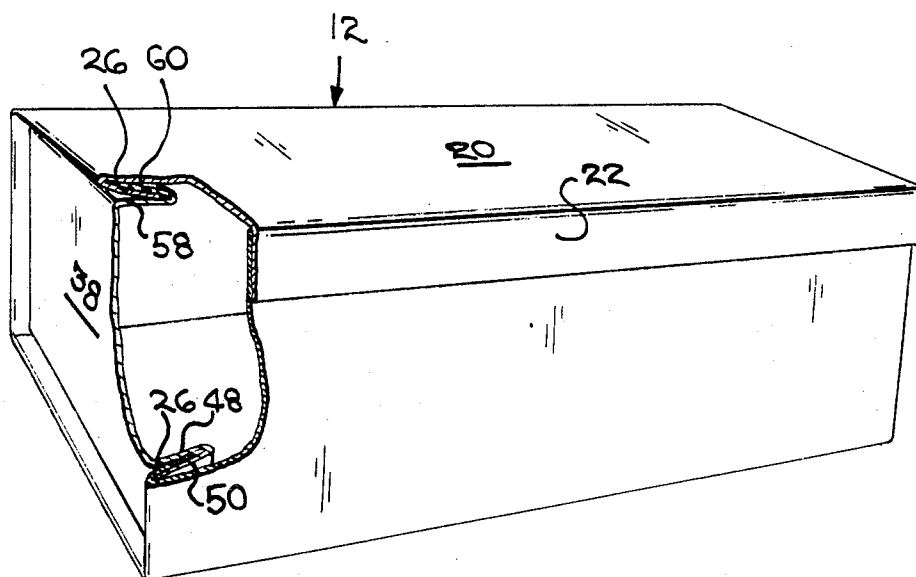
**[54] SELF-LOCKING PAPERBOARD SHIPPING
CONTAINER**
7 Claims, 5 Drawing Figs.

[52] U.S. Cl..... 229/23,
229/37

[51] **Int. Cl.**..... **B65d 13/00,**
B65d 5/02

[50] **Field of Search**..... 229/37 (B),
23 (BC); 206/46 (Mach. Furn.)

ABSTRACT: A self-locking folded paperboard shipping container including interlocking body and end portions wherein the end panels are formed with reversely bent flaps on each side forming an interlocking V to engage intumed portions on said body when said end panels are inserted into the body through an open top flap and pushed into position to close the ends and form a rigid interlocked structure.



2 Sheets-Sheet 1

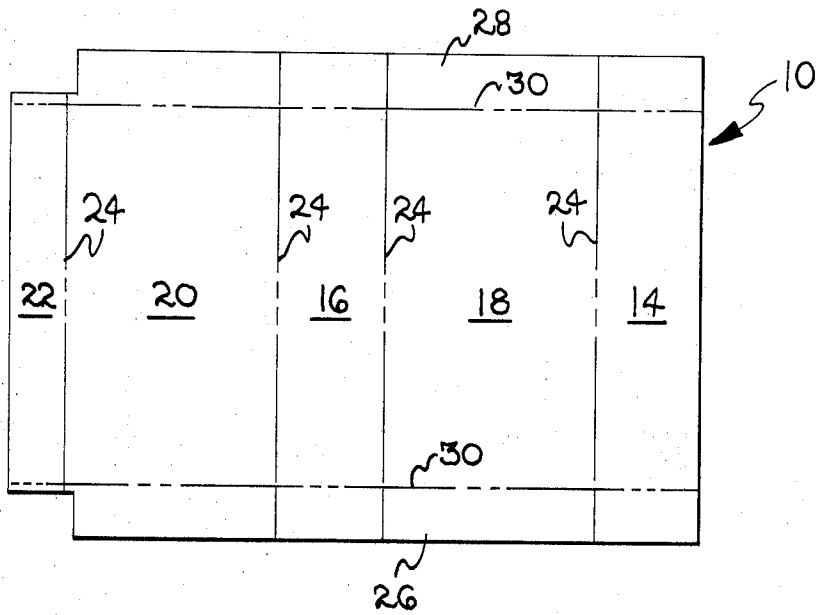


FIG. 1

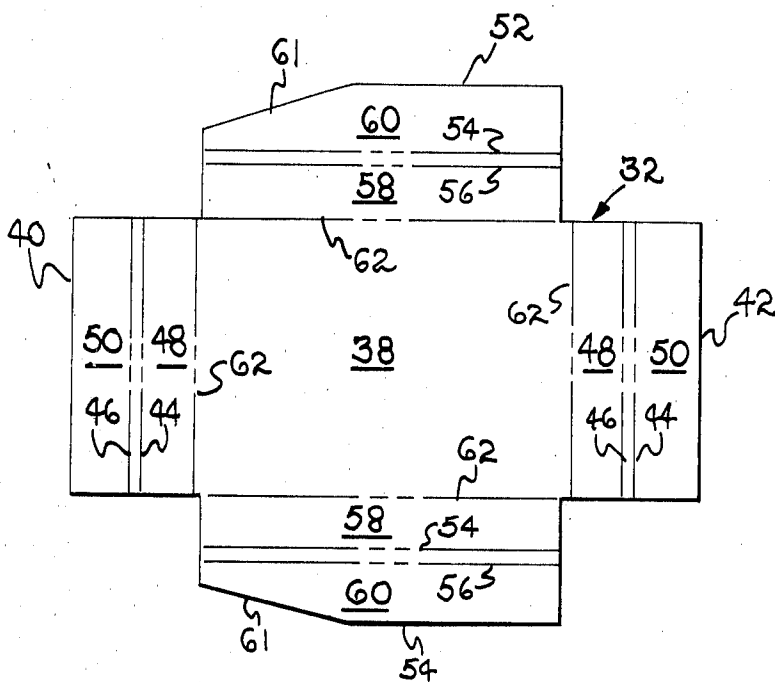


FIG. 3

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FIG. 2

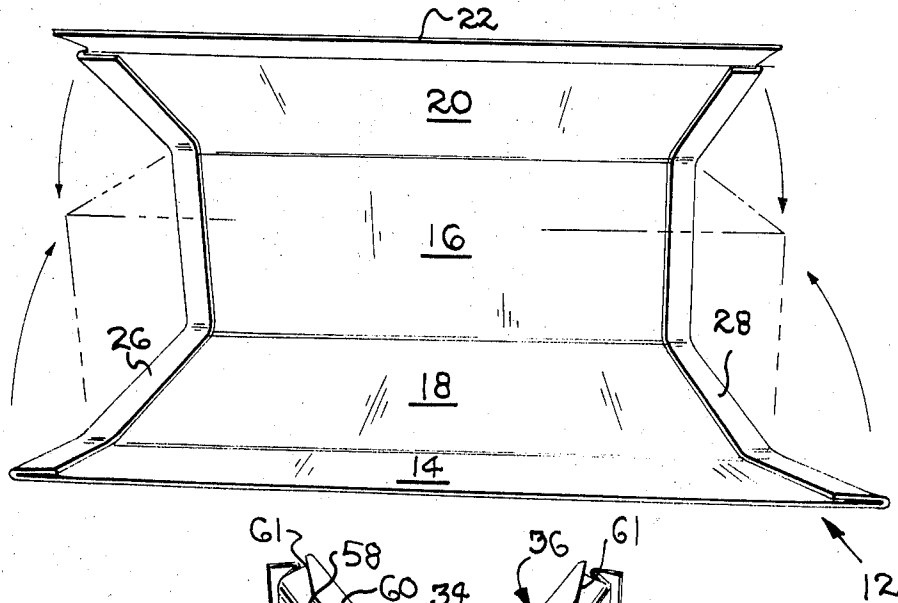


FIG. 4

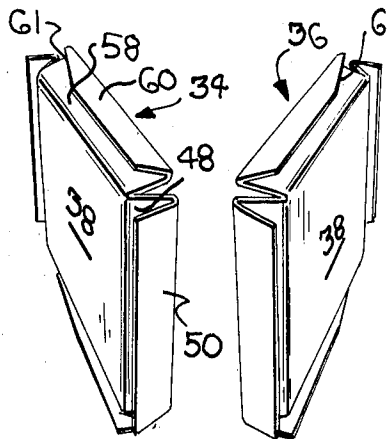
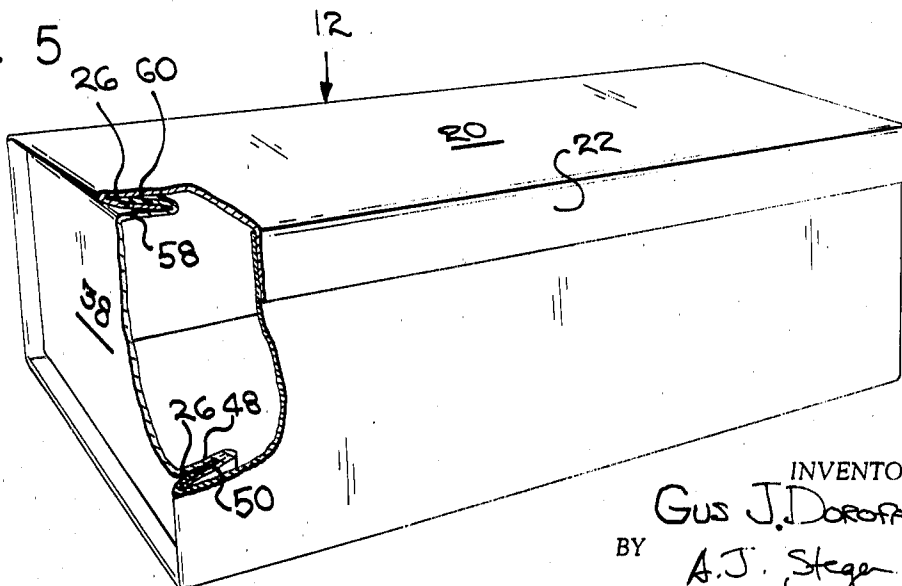


FIG. 5



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SELF-LOCKING PAPERBOARD SHIPPING CONTAINER

BACKGROUND OF THE INVENTION

This invention relates to containers and, more particularly, relates to a container constructed of fibrous material such as paperboard or the like and which may be folded or collapsed for shipping or storage and unfolded and set up as needed.

It is very desirable to have an inexpensive container suitable for packaging large bulky items such as bathtubs, metal cabinets, etc. Suitable containers for such large bulky items have typically been rather expensive due to the high strength characteristics necessary to contain such products. In general, most of these types of products have been shipped in heavy wooden crates. These wooden containers are not only extremely heavy and cumbersome, but expensive, both from the standpoint of material cost and the assembly time involved.

Hence, there is a significant need for, and it is an object of this invention to provide an inexpensive lightweight container which is adapted for packaging and shipping large, bulky items. Other objects, features, and advantages of this invention will become obvious to those skilled in the art upon reference to the following detailed description and the drawings illustrating a preferred embodiment thereof.

IN THE DRAWINGS

FIG. 1 is a plan view of a paperboard blank adapted to be folded to form the main body portion of the subject container.

FIG. 2 is a perspective view of the main body blank of FIG. 1 showing its assembly procedure.

FIG. 3 is a plan view of the paperboard blank which is adapted to form one of the end portions to be used in conjunction with the body blank of FIGS. 1 and 2.

FIG. 4 is a perspective view of two end portions formed from box blanks such as that shown in FIG. 3.

FIG. 5 is a perspective view of the assembled container with parts broken away in section showing the engagement between the main body portion and the end portion.

SUMMARY OF THE INVENTION

In general, this invention provides a substantially rigid container which may be constructed of a fibrous product such as paperboard and which is adapted to hold a rather large, bulky product. More specifically, this invention provides a three-piece folded paperboard shipping container in which the main body of the carton is formed by first folding the ends of a single blank inward, then forming the body into a generally rectangular shape while leaving the top flap open. The end panels are formed with reversely bent flaps on each side forming an interlocking V to engage the intumed end portions of the body. The folded end portions are inserted into the carton through the open top flap and pushed into position, thereby closing the ends and retaining the body of the carton in its rectangular shape. After the product to be contained has been placed within the carton, the top flap is closed and stitched to the body portion, thereby interlocking the end folded end portions on the body with the reversely bent flaps on the ends to form a rigid interlocked structure. Thus, a large rectangular container is provided which exhibits sufficient rigidity and strength properties to make it well suited for containing large, bulky items, but which is also light in weight and inexpensive when compared with standard wooden crates used for the same purpose.

DESCRIPTION OF THE PREFERRED EMBODIMENT

More particularly, FIG. 1 shows a box blank 10 which has been scored and sized so as to make it foldable into the main body portion indicated generally as the numeral 12 in FIG. 2. The box blank 10 is seen to include a pair of side panels 14 and 16, a bottom panel 18, a top panel 20, and a top closing flap 22, all of which are separated by suitable score lines 24. Formed along the opposite edge of these panels are a pair of end flaps 26 and 28. These end flaps are separated from the

various panel components by suitable score lines 30. The transformation of the box blank 10 into the main body portion 12 can best be understood by reference to FIG. 2. The end flaps 26 and 28 are first folded 180° on their score lines 30 so as to lay flat on the various panel components of the main body 12. The side panels 14 and 16 which respectively form the front and back of the container are then folded on their score lines 24 to a position perpendicular to the bottom panel 18. Likewise, the top panel 20 is folded to a position so as to also be oriented parallel to the bottom panel 18 and perpendicular to the front and back panels 14 and 16. Thus, a generally rectangular body configuration has been formed and the infolded end flaps 26 and 28 have been locked into position to accept the end panels, which will be described later.

FIG. 3 shows a paperboard box blank 32 which is scored and sized so as to be adapted to be formed into an end panel such as those indicated generally by the numerals 34 and 36 in FIG. 4. The box blank 32 includes a main end panel 38 which is bounded on each of its four sides by a flange portion which is divided into two flaps which are capable of being reversely bent so as to form an interlocking V portion. The flanges 40 and 42 on opposite sides of the end panel 38 are divided by score lines 44 and 46 into a pair of identical flaps 48 and 50. The flanges 52 and 54 on the top and bottom respectively of the end panel 38 are divided by score lines 54 and 56 into a pair of dissimilar flaps 58 and 60. The flaps 60 differ from flaps 58 in that they have a tapered lead-in portion 61. Each of the flanges 40, 42, 52, and 54 are foldably attached to the end panel 38 by means of score lines 62. To understand the folding of these flap portions of the box blank 32, reference should be had to the formed end portions 34 and 36 in FIG. 4. To form the end portion 34, each of the pairs of innermost flaps 48 and 58 are folded rearwardly of the end panel 38 while the pairs of outermost flaps 50 and 60 are reversely folded with respect to the flaps 48 and 58 in the forward direction. Thus, as shown in FIG. 4, the reversely bent flap portions form four V-shaped members on the end panel 38 which are adapted to interlock with the intumed end flaps 26 of the main body 12. The end portion 36 is formed in an identical manner to end portion 34 and has four V-shaped members which are adapted to engage the intumed end flap 28 at the other end of the main body 12.

Once the main body has been folded into the rectangular construction as shown in FIG. 2 and the end portions 34 and 36 have been formed as shown in FIG. 4, the end portions 34 and 36 are inserted into the main body 12 through the opening formed by raising the top panel 20 of the body 12. The end portions 34 and 36 are then pushed into the position as shown in FIG. 5. Here it can be seen that the upper V-shaped member formed by flaps 58 and 60 on the end panel 38 interlock with the intumed end flap 26 on the body portion 12. Likewise, the other V-shaped portions formed by the flaps 48 and 50 interlock with the intumed end flap 26 to lock the end portion 34 to the main body 12, thereby forming a rigid end construction. As mentioned previously, the end flaps 60 are tapered at their lead-in end 61 so as to facilitate the easy insertion of the portion of the intumed end flap 26 attached to the top panel 20 and the bottom panel 18.

After insertion of the article to be contained, the top panel 20 is locked into place and its top closing flap 22 folded over the front panel 14 and stitched thereto, thereby forming a completely rigid closed container. The positioning and assembly of the end portion 36 to the other end of the body 12 is identical to that explained in conjunction with end portion 34. Thus, a completely rigid container has been formed which is suitable for shipping any number of articles which require a large rectangular container.

Hence, the unique combination of three relatively simple paperboard box blanks folded and assembled in the manner suggested by this invention results in the formation of a large rectangular container exhibiting great rigidity and strength properties but which is light in weight and economical. Thus, the necessity of utilizing cumbersome and expensive wooden crates to package and ship bulky articles such as bathtubs,

metal cabinets, etc., has been obviated by the unique container of this invention. It should be obvious that the invention is not limited to the formation of a rectangular container.

Although but one embodiment of this invention has been shown and described in detail, it should be clear to those skilled in the art to which it pertains that many changes and modifications may be made thereto without departing from the scope of the invention.

I claim:

1. A self-locking folded paperboard container comprising:
body means having inturned portions along both of its ends;
and
a pair of end closing means formed with reversely bent flaps on each side forming an interlocking V on each side thereof adapted to engage said inturned portions on said body means to close the ends of said body means and form a rigid interlocked structure.
2. A self-locking folded paperboard container as set forth in claim 1 wherein said body means and said end closing means are substantially rectangular.
3. A self-locking folded paperboard container as set forth in claim 2 wherein said body means includes a pair of side

panels, a bottom panel, and a top panel.

4. A self-locking folded paperboard container as set forth in claim 3 wherein said top panel includes a closing flap adapted to be folded perpendicular to said top panel and attached to one of said side panels.

5. A self-locking paperboard container as set forth in claim 3 wherein one of said side panels is formed between and integral with said top and bottom panels and the other of said side panels is formed integral with and positioned adjacent to the opposite side of said bottom panel.

6. A self-locking paperboard container as set forth in claim 5 wherein said top panel includes a closing flap adapted to be folded perpendicular to said top flap and attached to said other of said side panels.

7. A self-locking paperboard container as set forth in claim 6 wherein the outermost of the reversibly bent flaps on at least one side of each of said end closing means has a tapered lead-in portion to facilitate the positioning of the inturned portions on said top panel thereunder when said top panel is closed and said closing flap attached to said one of said side panels.

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