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J. McCALLUM

2,987,235

COMPARTMENTALIZED CARTON

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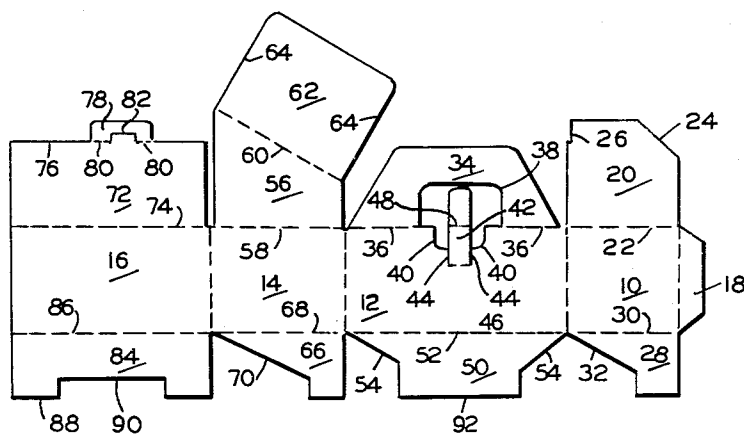


FIG. 1

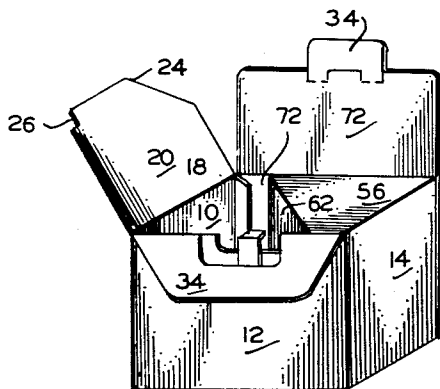


FIG. 2

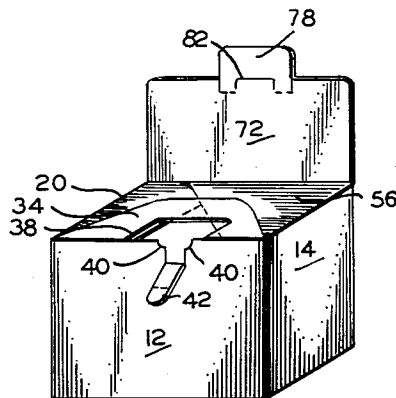


FIG. 3

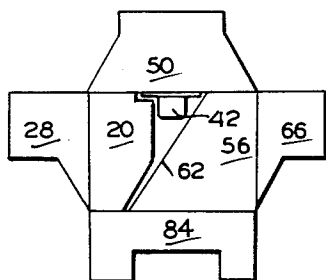


FIG. 4

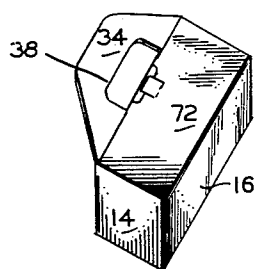


FIG. 5

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3 Claims. (Cl. 229-27)

It is an object of this invention to provide a compartmentalized container which will provide protection to the contents while being reduced in size and tare weight over containers heretofore used for similar purposes.

It is a further object of this invention to provide a container as aforesaid which is of one piece construction, and easy to set up and load.

It is a further object of this invention to provide a container as aforesaid which is reusable, and easily may be knocked down for storage purposes.

It is a further object of this invention to provide a container as aforesaid with a handle portion which may be enclosed during shipment, and made available as a projection for carrying purposes.

The above and other objects will be made clear from the following detailed description taken in connection with the annexed drawings in which:

FIGURE 1 is a plan view of the one-piece blank from which the improved container is formed;

FIGURE 2 is a perspective view showing the blank of FIGURE 1 in partially assembled and erected condition;

FIGURE 3 is a view similar to FIGURE 2 showing further completion of the erection;

FIGURE 4 is a bottom plan view showing the relationship of interior parts when the top is fully closed; and

FIGURE 5 is a perspective view showing the container with its handle component in condition for use.

The disclosure of this application is based on a design intended for packaging photographers flood lamp bulbs, and certain constructional details of the design are specialized for that purpose. Clearly, however, with slight modification in detail, the container can be adapted to other purposes.

The primary function of a container is to protect its contents, and all possible economic advantages of design or manufacture or ultimate assembly are subsidiary to the requirements of strength and padding. Once, however, these fundamental requirements of protection are satisfied, considerations of size, tare weight, total material, ease of assembly, etc. become dominant factors, on a scale of priorities exactly determined by the relationship of each to the final cost sheet.

The total board going into any box is determined by the extreme length and width dimensions of the blank. Removal of portions within these dimensions has no effect whatever on total board consumption, but does effect a reduction in the tare weight of the box, on which freight must be paid at the rate applicable to the contents. A die cutting operation merely for the purpose of reducing tare weight might, itself, cost more than the freight saving, but if the die cutting operation is needed to satisfy other requirements of design, then it may be used to accomplish weight reduction at the same time. This is a point seldom realized by box designers.

Referring now to FIGURE 1, there is shown a blank made up of an end panel 10, a front panel 12, a second end panel 14 and a rear panel 16. When the box is erected, a flap 18 on one side of the end panel 10 is secured to the rear panel 16. At one margin of the end panel 10 is a top closure flap 20 defined by score line 22. The flap 20 has one side bevelled at 24 and the other side notched at 26. Opposite the top closure flap 20 is a bottom flap 28 defined by a score line 30 and having a bevelled portion 32.

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The front panel 12 has a top flap 34 defined by score lines 36. A hand hold 38 is die cut into the flap 34. Die cuts 40 in the panel 12 are separated by a tongue 42 defined by slits 44 and a score line 46. An additional score line 48 is formed approximately medially of the tongue 42. Panel 12 has a bottom closure flap 50 defined by score line 52 and the flap 50 has bevelled side portions 54.

End panel 14 has a top flap 56 defined by a score line 58. The flap 56 has a diagonal score line 60 defining a partition-forming flap 62, the sides 64 of which are normal to the score line 60. The panel 14 has a bottom closure flap 66 defined by a score line 68 and having a diagonal portion 70.

The panel 16 has a top closure flap 72 defined by a score line 74. The free margin 76 of the flap 72 carries a die cut tongue 78 defined by score lines 80 between which is a die cut tongue 82. The panel 16 has a bottom flap 84 defined by a score line 86, the flap 84 having in its free edge 88 a die cut rectilinear opening 90.

For the purposes of FIGURES 2 and 3, the front, rear and end panels have been erected to rectilinear condition and the bottom has been fully formed by interlocking the bottom closure flaps. This is done by first folding inwardly the flaps 84 then flaps 28 and 66, after which the flap 50 is pressed inwardly depressing the entire bottom until a tongue 92 on the flap 50 enters the opening 90 in the flap 84, after which the bottom is sprung back into plane condition with the tongue 92 of the flap 50 underlying the central portion of the flap 84.

Referring now to FIGURE 2, the flaps 20, 34 and 72 are shown bent back preparatory to closing. The flap 56 has been folded into the plane of the top, while the partition-forming flap 62 has been folded normal thereto to define a trapezoidal compartment. A photo-flood bulb or similar object is placed in this compartment as the compartment is formed.

In FIGURE 3 the top closure flap 20 has been folded into the plane of the top after, of course, insertion of the contents, and the front closure flap 34 similarly has been folded over and superimposed upon the flaps 20 and 56. The tongue 42, however, remains bent outwardly. The closure is completed thereafter by superimposing the top closure flap 72 upon the other flaps. The tongue 78 of the flap 72 enters the opening defined by die cuts 40 in the front panel 12 and is given clearance through the flap 20 by the die cut 26. The tongue 42 thereupon is inserted through the die cut 82 in the tongue 78 to lock the closure.

Referring now to FIGURE 4, the bottom flaps 28, 50, 66 and 84 are shown opened up to show the relationship of the parts when the closure is complete as above described.

A particular feature of the invention lies in the use of the panel 34 as a carrier handle while the remainder of the package is still securely locked. This is accomplished as shown in FIGURE 5 by completing the top closure as just described, leaving, however, the flap 34 outside the plane of the top. It will be realized that this package can be shipped in rectilinear condition with maximum protection of the contents. It may be opened easily for inspection of the contents by the purchaser. It is then easily and securely reclosed with, however, a provision of a handle as shown in FIGURE 5 for convenience of the customer.

If extreme automation of the package line is desired, regular slotted flaps may be substituted for the bottom flaps shown. In such case the top is first fully closed, permitting two bulbs to be loaded at once into the already defined compartments and permitting the bottom thereafter to be closed with the package in motion, by standard flap folding and pasting equipment.

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While a functional equivalent of the package just described can be made with less total board consumption by making it in four or five pieces, the resultant container is costlier on an overall basis, particularly as regards space requirements of the erected package.

Although various changes in detail will suggest themselves to those skilled in the art, it is not intended to limit this invention to the precise details disclosed herein but only as set forth in the subjoined claims.

I claim:

1. A package formed from a single sheet of board cut and scored to provide front and rear panels, end panels and bottom closing flaps, a top closure flap on the rear panel, a tongue on the free edge of said top closure flap, a slit at the base of said tongue, a flap on the front panel said flap having a die cut hand-hold opening, centrally located, and a locking tongue within the die cut portion for interlocking engagement with the slit in the tongue of the rear wall top closure flap said die cut opening being sized and shaped to receive the fingers of a human hand whereby the top closure flap may be locked with said handle-forming flap in either active or concealed position.

2. A package formed from a single sheet of board cut and scored to provide front and rear panels, end panels

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and bottom closing flaps, a flap on one of said end panels and forming an extension of said panel, said flap being diagonally scored and having a partition-forming portion projecting normal to said score, a top closure flap on the rear panel, a tongue on the free edge of said closure flap, a slit at the base of said tongue, a flap on the front panel said flap having a die cut hand-hold opening, and a locking tongue within the die cut portion for interlocking engagement with the slit in the tongue of the rear wall top closure flap whereby the top closure flap may be locked with said handle-forming flap in either active or concealed position.

3. A package as set forth in claim 2 in which the top closure flap tongue fits within the die cut of the handle-forming flap.

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