United States Patent [19]

Rosenburg, Jr.

[11] **3,895,754**

[45] **July 22, 1975**

[54] **TAPERED CARTON ASSEMBLY CONTAINING FILLER CARTON**

[75] Inventor: **Charles W. Rosenburg, Jr.**, North Tonawanda, N.Y.

[73] Assignee: **F. N. Burt Company, Inc.**, Buffalo, N.Y.

[22] Filed: **Aug. 16, 1974**

[21] Appl. No.: **498,131**

[52] **U.S. Cl.** ..... **229/23 R**; 229/34 HW; 229/14 C; 229/16 R

[51] **Int. Cl.**[2] **B65D 5/36**; B65D 5/00

[58] **Field of Search** ..... 229/34 HW, 34 R, 16 A, 229/16 R, 15, 14 C, 23 D

[56] **References Cited**

UNITED STATES PATENTS

2,242,741	5/1941	Betts et al.	229/34 HW
2,389,703	11/1945	Van Rosen	229/34 HW X
2,893,620	7/1959	Williamson	229/34 HW
3,100,595	8/1963	Curtiss et al.	229/34 HW X
3,123,274	3/1964	Burke	229/14 C
3,124,293	3/1964	Transport	229/16 R
3,138,316	6/1964	Meyer	229/16 R
3,232,513	2/1966	Maio	229/14 C
3,232,518	2/1966	Williamson	229/34 HW X

Primary Examiner—Davis T. Moorhead

Attorney, Agent, or Firm—Watson, Cole, Grindle & Watson

[57] **ABSTRACT**

A carton assembly includes a tapered carton containing a filler carton, the tapered carton having sides forming a truncated pyramid, a pair of opposing sides being hollow walls each having a section disposed perpendicular to the bottom wall of the tapered carton. The remaining sides of the carton are removably connected with such opposing sides, and the filler carton is of a size equal to the spacing between the perpendicular sections. Also, the filler carton has projections extending outwardly of opposite sides of the bottom panel thereof in the lengthwise direction of the filler carton, so that the filler carton is prevented from shifting within the tapered carton in directions parallel to its bottom wall by reason of these projections as well as the perpendicular sections of the tapered carton.

9 Claims, 10 Drawing Figures

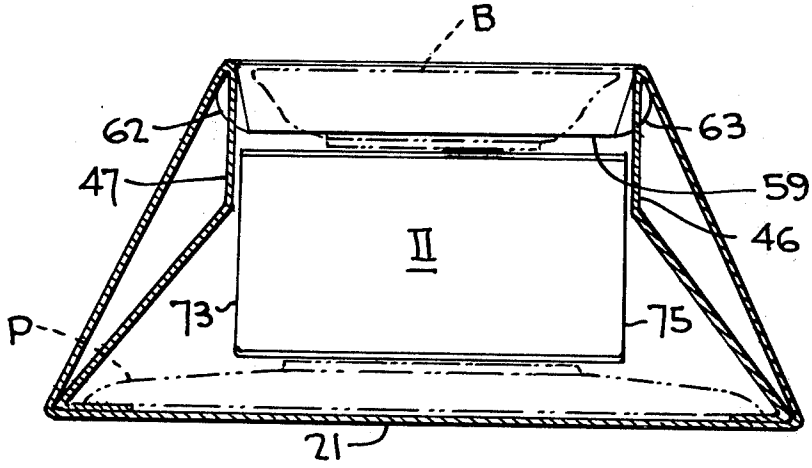


FIG. 1

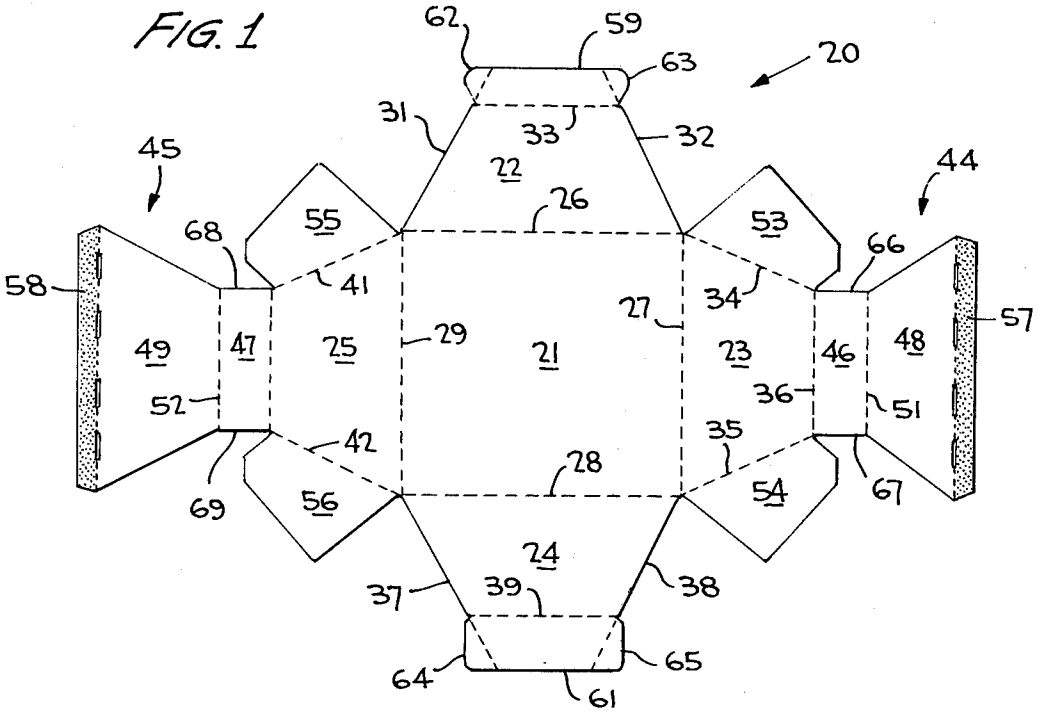

62
59
63
20
31
33
32
22
45
44
26
68
55
53
66
58
41
27
34
57
49
47
25
29
21
23
46
48
52
36
51
42
35
28
69
56
54
67
24
37
39
38
64
65
61

FIG. 6

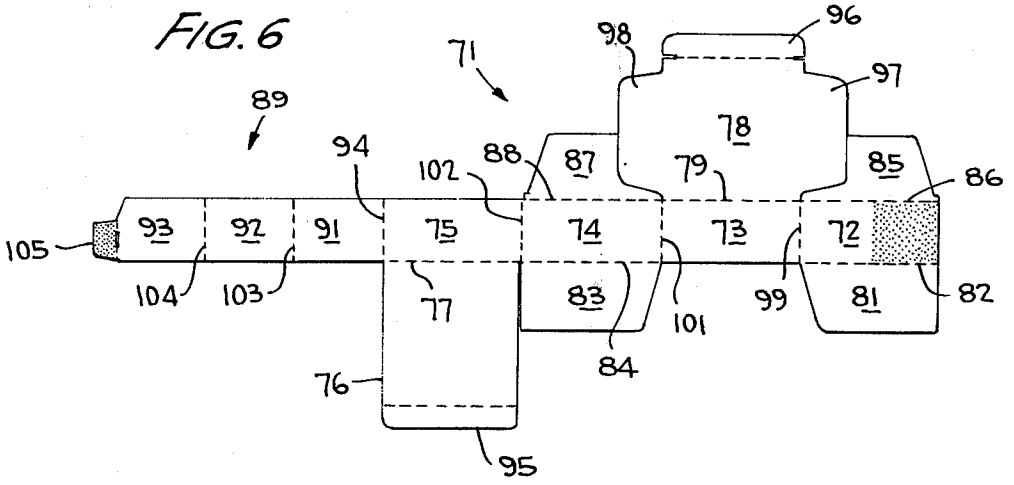

71
98
96
97
89
78
94
102
88
87
79
85
86
93
92
91
75
74
73
72
105
104
103
77
83
101
99
81
82
84
76
95

FIG. 2

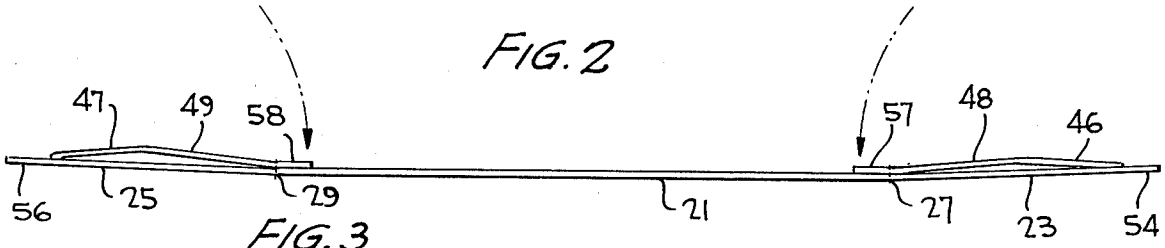


FIG. 3

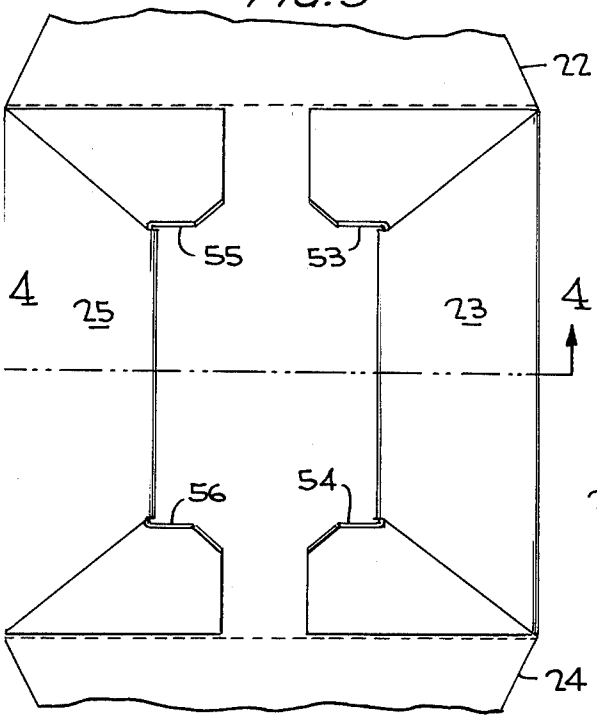


FIG. 4

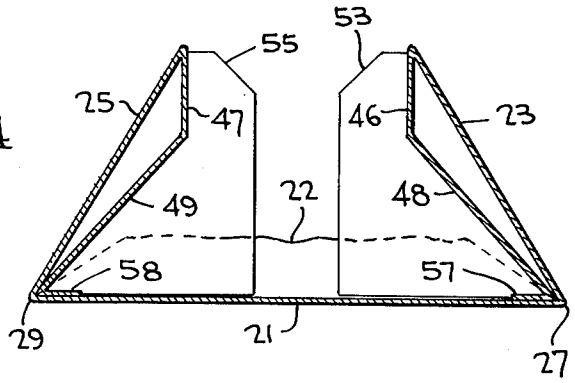


FIG. 5

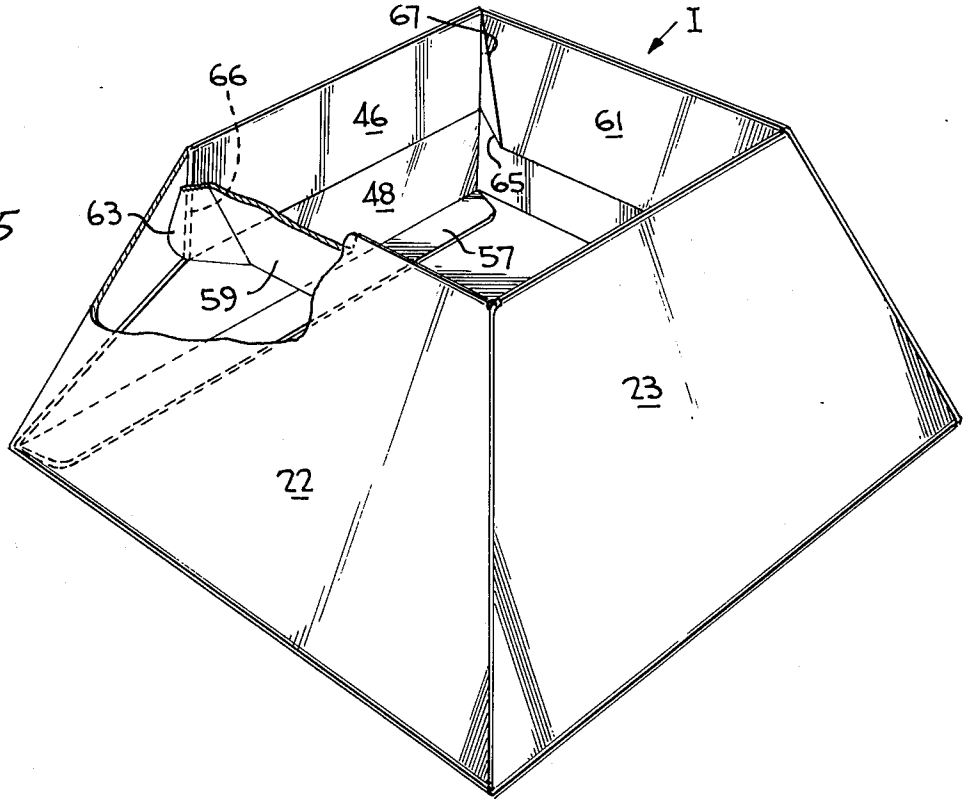


FIG. 7

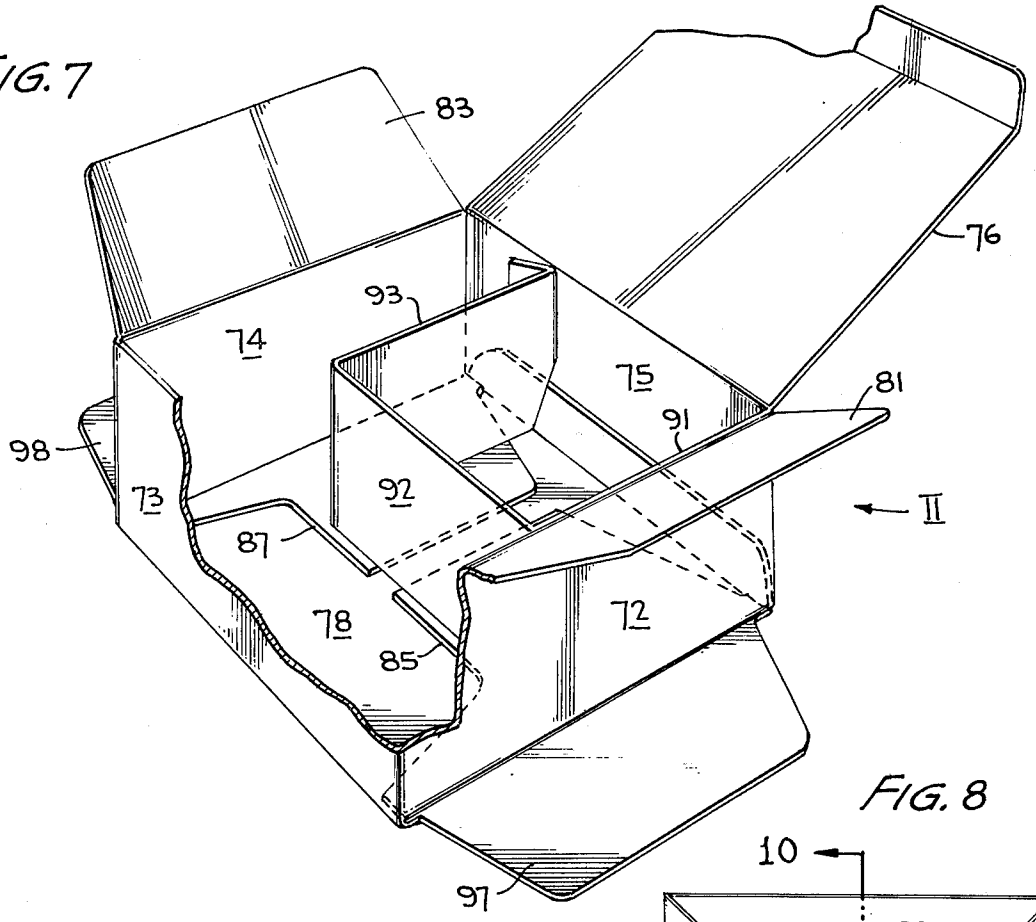


FIG. 8

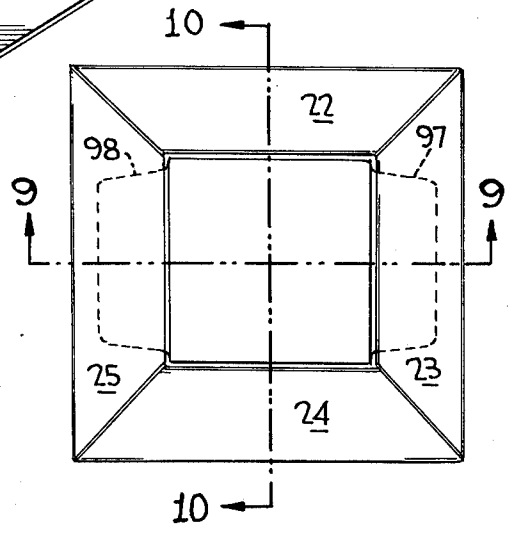


FIG. 9

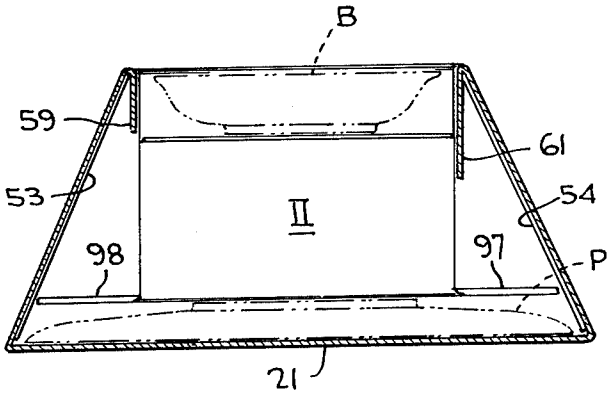
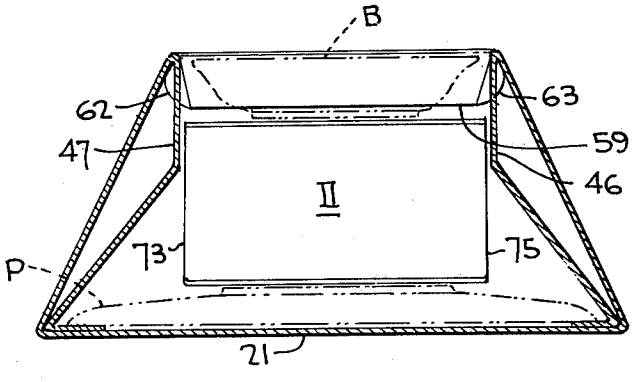


FIG. 10



TAPERED CARTON ASSEMBLY CONTAINING FILLER CARTON

This invention relates generally to folded cartons, and more particularly to an assembly of such cartons wherein a tapered carton is designed for containing a filler carton, both cartons being so constructed as to substantially avoid shifting of one within the other.

During the shipment of fragile merchandise, especially sets of chinaware and the like, extreme care must be taken in the packaging of such items to insure against breakage. Generally, damage can be minimized by simply packaging the material to avoid excessive shifting during transit. A carton assembly has therefore been devised, as for example a chinaware set, wherein a filler carton is constructed to contain one of the china pieces, while the remaining pieces are contained within a tapered outer carton along with the filler carton. It is the principal object of this invention to construct both of these cartons in such a manner as to prevent shifting of the filler carton and the packaged items within the outer carton.

Another object is to provide such a carton assembly wherein the outer carton has sides connected to a bottom wall together forming a truncated pyramid, opposing sides being formed as hollow walls having an inner section perpendicular to the bottom wall and spaced apart a distance substantially equal to the width of the filler carton. The remaining sides of the outer carton are removably connected with these opposing sides to facilitate easier packaging. Moreover, projections extend outwardly of the bottom panel of the filler carton in a lengthwise direction thereof so that the filler carton is prevented from shifting in both directions parallel to the outer carton bottom wall.

A still further object of the present invention is to provide a tapered carton having sides forming a truncated pyramid with the bottom wall thereof, opposing sides thereof having an inner wall each including a rectangular section lying perpendicular to the bottom wall, and further including a section which slopes from this rectangular section toward an adjacent edge of the bottom wall thereby forming a hollow wall with a cross-section as an obtuse triangle, the remaining side walls being removably connected to these opposing side walls.

A still further object is to provide such a tapered carton wherein lock flaps on the remaining side walls overlap side flaps on the opposing side walls and bear against opposite edges of the perpendicular sections so as to removably lock each of the sides together.

A still further object of the present invention is to provide a filler carton as having angularly related partition panels located inwardly of the side walls thereof, and a bottom panel having projections extending outwardly of the edges thereof.

Other objects, advantages and novel features of the invention will become apparent from the following detailed description of the invention when considered in conjunction with the accompanying drawings wherein:

FIG. 1 is a plan view of the cut blank from which the tapered carton is formed in accordance with the invention;

FIG. 2 is an end view of FIG. 1 at a slightly enlarged scale with opposing sides first formed as double walls;

FIG. 3 is a top plan view of the partially erected outer carton with its double walls in place;

FIG. 4 is a cross-sectional view taken along line 4—4 of FIG. 3;

FIG. 5 is a perspective view of the fully erected outer carton;

FIG. 6 is a plan view of the cut blank used in forming the filler carton of the invention;

FIG. 7 is a perspective view of the fully assembled filler carton;

FIG. 8 is a top plan view of the carton assembly showing the outer carton containing the filler carton; and

FIGS. 9 and 10 are respectively sectional views of the carton assembly taken along lines 9—9 and 10—10 of FIG. 8.

Turning now to the drawings wherein like reference characters refer to like and corresponding parts throughout the several views, a cut blank 20 of paperboard or the like is shown in flat plan in FIG. 1 from which the outer or tapered carton of FIG. 5 is erected. A bottom wall 21 of polygonal shape has outer side walls 22, 23, 24 and 25 respectively connected along its marginal edges 26, 27, 28 and 29. Such interconnections are each made along fold lines at these marginal edges. Opposite side edges 31 and 32 of side wall 22 converge from edge 26 to free edge 33 so as to form a trapezoid, side edges 31 and 32 being equal. Side walls 23, 24 and 25 are of the same shape as that of wall 22 and, since bottom wall 21 is square in this illustration, each of the side walls is of an identical size.

An inner wall 44 is connected along free edge 36 of side wall 23 defined by a fold line at such edge. An inner wall 45 is similarly connected along free edge 43 of side wall 25. These inner walls respectively include rectangular sections 46 and 47, as well as sections 48 and 49 respectively connected to sections 46 and 47 along fold lines 51 and 52. Each of these sections 48 and 49 has outwardly diverging side edges as shown.

Side flaps 53 and 54 are respectively provided along side edges 34 and 35 of side wall 23, and side flaps 55 and 56 are likewise respectively connected to side wall 24 along its side edges 41 and 42.

The outer or tapered carton I shown in FIG. 5 is initially erected by securing glue flaps 57 and 58, respectively provided along the outer edges of sections 48 and 49, to the top surface of bottom wall 21 near respective edges 27 and 29 thereof as shown in FIG. 2. It can be seen that the combined width of sections 46 and 48 is slightly greater than the width of outer side wall 23, and similarly with respect to outer wall 45 and inner wall 25, so that double hollow walls will be formed as side walls 23 and 25 are folded inwardly along lines 27 and 29 to the erected position of FIGS. 3 and 4.

Thereafter, side walls 22 and 24 are folded inwardly along lines 26 and 28 so as to form together with side walls 23 and 25 a truncated pyramidal carton I with adjacent side wall edges of the outer side walls coniciding as shown in FIG. 5. The four outer side walls may be detachably secured together by means of lock flaps 59 and 61 respectively provided along edges 33 and 39 of side walls 22 and 24. Flap 59 is provided with bendable ears 62 and 63 along opposite edges thereof, and flap 61 is provided with similar bendable ears 64 and 65 along its opposite end edges. In the final assembly of carton I, flap 59 is made to overlap side flaps 53 and 55, and flap 61 is made to similarly overlap side flaps 54 and 56. The bendable ears on each of the lock flaps facilitate an easier overlapping operation and, most importantly, these bendable ears serve to lock side walls

22 and 24 to adjacent side walls 23 and 25. This is effected by means of ear 65 bearing against end edge 67 of section 46, and ear 63 bearing against end edge 66 of section 46 as shown in FIG. 5. Similar contact between ears 62 and 64 respectively bearing against end edges 68 and 69 of section 47 takes place after flaps 59 and 61 are overlapped in place.

Filler carton II, shown in FIG. 8, is adapted to be contained within the outer or tapered carton. The cut blank 71 from which the filler carton is formed is shown in FIG. 6. This carton is basically of a square configuration as comprising equal side walls 72, 73, 74 and 75, a top cover panel 76 being connected to side wall 75 along top edge 77 thereof, and a bottom panel 78 being connected to side wall 73 along bottom edge 79 thereof. Top flaps 81 and 83 are respectively connected to side walls 72 and 74 along top edges 82 and 84 thereof, and bottom flaps 85 and 87 are respectively connected to side walls 72 along bottom edges 86 and 88 thereof. A partition 89, comprising interconnected partition panels 91, 92 and 93, is interconnected to side wall 75 along fold line 94. Tabs 95 and 96 are respectively provided for top and bottom panel 76 and 78, and tabs or projections 97 and 98 lie in the same plane as bottom panel 78 and project outwardly of opposite sides thereof.

The blank is erected to form a filler carton II as shown in FIG. 7 by folding the side walls along their respective fold lines 99, 100, 101 and 102 into a square box. Partition panel section 91 is secured to the inner surface of wall 72, and panels 92 and 93 of the partition are folded along lines 103 and 104 to form a partition wherein panels 92 and 93 are respectively spaced from walls 73 and 74. Of course, panel 93 is secured to the inner surface of wall 75 by means of a tab such as 105.

It should be pointed out that the widthwise dimensions of rectangular sections 46, 47 and that of sections 48, 49 are chosen so that, when carton I is initially erected in the manner shown in FIGS. 3 and 4, rectangular sections 46 and 47 each lie substantially perpendicular to bottom wall 21. Also, filler carton II is constructed so that its widthwise dimension between side walls 73 and 75 is substantially equal to the spacing between rectangular sections 46 and 47 of the erected outer carton as shown in FIG. 10. Also, projections 97 and 98 extend along the lengthwise direction of the filler carton as seen in FIGS. 8 and 9.

In packaging carton I, walls 23 and 25 are erected into the position shown in FIG. 4, whereafter wall 24 is erected into its position of FIG. 5, its flap 61 being made to overlap with side flaps 54 and 56. Ears 64 and 65 are pressed toward side wall 24 during the overlapping operation so that they are moved to one side of sections 46 and 47 and bear against respective end edges 67 and 69 thereof. Thereafter, a plate P of, for example, a 3-piece chinaware set is inserted within carton II through the opening provided by side wall 22 which has not yet been erected. Plate P is shown in FIGS. 9 and 10 as lying face down on bottom wall 21. Following this, a cup is placed within the filler carton and occupies the space defined by sections 92, 93 and walls 72, 75. This carton is then inserted within carton II so as to rest on top of plate P. The filler carton is oriented within the outer carton in a manner whereby projections 97 and 98 extend toward tabs 61 and 59 as shown in FIG. 9. After the filler carton is inserted, a bowl B is placed on the top of the filler carton, and side wall 22 is erected into its position of FIG. 5. Tab 59 overlaps side flaps 53 and 55, and ears 62 and 63 are made to bear respectively against end edges 66 and 68. It should be noted that the width of lock flap 59 is less than the width of lock flap 61 so as to avoid inteference between flap 59 and the filler carton as side wall 22 is erected.

In view of the foregoing, it can be seen that a simple and economical yet highly effective carton assembly has been devised wherein the unique construction of both cartons I and II is such that the filler carton is substantially prevented from shifting in both directions parallel to bottom wall 21. Opposite side walls 73 and 75 of the filler carton fit snugly against respective rectangular sections 47 and 46, and projections 97 and 98 are designed to abut against the inner surfaces of flaps 53, 55 and flaps 54, 56. Accordingly, the filler carton is held snugly in place within the outer or tapered carton II. Of course, the cartons can be of other polygonal shapes than square as shown, and materials other than a three-piece chinaware set may be packaged in carton I, without departing from the scope of the present invention.

Obviously, many other modifications and variations of the invention are made possible in the light of the above teachings. It is therefore to be understood that within the scope of the appended claims the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. A carton assembly including a tapered carton containing a filler carton, said tapered carton comprising a polygonal bottom wall, an outer side wall connected to said bottom wall along each marginal edge thereof, opposite side edges of each said side wall converging from said bottom wall to the free edge thereof so as to form a truncated pyramidal carton when erected with adjacent side wall edges coinciding, an inner wall connected along the free edge of an opposing pair of said side walls and being secured to said bottom wall, each said inner wall including a rectangular section at said connected edge, each said section lying perpendicular to said bottom wall, each of the remaining side walls being removably connected to said opposing pair of side walls, and said filler carton comprising interconnected flat side walls, the width of said filler carton being substantially equal to the spacing between said rectangular sections, a bottom panel connected along an edge of one of said flat side walls, projections extending outwardly of opposite ends of said bottom panel along the length of said filler carton, whereby said filler carton is prevented from shifting within said tapered carton in directions parallel to said bottom wall.

2. The carton assembly according to claim 1 wherein each said inner wall slopes outwardly from said rectangular section to an adjacent edge of said bottom wall.

3. The carton assembly according to claim 1 wherein side flaps are provided along said opposite side edges of said opposing pair of side walls, and a lock flap is provided along the free edges of said remaining side walls, each said lock flap overlapping a pair of adjacent side flaps, said lock flaps like-wise bearing against the end edges of said rectangular sections for locking said outer side walls together, and the length of said filler carton being substantially equal to the spacing between

said overlapping lock flaps to further prevent shifting of said filler carton.

4. The carton assembly according to claim **3** wherein bendable tabs are provided at opposite ends of each said lock flap to facilitate easier overlapping of said lock flaps.

5. A tapered carton for containing a filler carton, comprising a polygonal bottom wall, an outer side wall connected to said bottom wall along the marginal edges thereof, opposite side edges of each said side wall converging from said bottom wall to the free edge thereof so as to form a truncated pyramidal carton when erected with adjacent side wall edges coinciding, opposing side walls each having an inner wall connected along its free edge and secured to said bottom wall, each said inner wall including a rectangular section at said connected edge lying perpendicular to said bottom wall, each said inner wall further including a section which slopes from said rectangular section toward an adjacent edge of said bottom wall whereby each said inner wall and its connected outer wall form an obtuse triangle in cross-section, and each of the remaining side walls being removably connected to said opposing side walls.

6. The tapered carton according to claim **5** wherein side flaps are provided along said opposite side edges of said opposing side walls, and a lock flap is provided along the free edge of said remaining side walls, each said lock flap overlapping a pair of adjacent side flaps, and said lock flaps likewise bearing against the end edges of said rectangular sections for locking said outer side walls together.

7. The tapered carton according to claim **6** wherein bendable tabs are provided at opposite ends of each said lock flap to facilitate easier overlapping of said lock flaps.

8. A filler carton, comprising interconnected flat side walls having upper and lower free edges, a top cover panel connected along one of said upper free edges, angularly related partition panels located inwardly of said side walls and forming an extension of one of said side walls, a bottom panel connected along one of said lower free edges, and projections coplanar with said bottom panel extending outwardly of opposite edges thereof.

9. The filler carton according to claim **8** wherein one of said partition panels is secured to a side wall adjacent said one side wall, the remainder of said partition panels being spaced from the remainder of said side walls.

* * * * *