

Sept. 26, 1944.

G. L. SMITH

2,358,943

PACKING BOX

Filed Nov. 25, 1940

2 Sheets-Sheet 1

Fig. 4

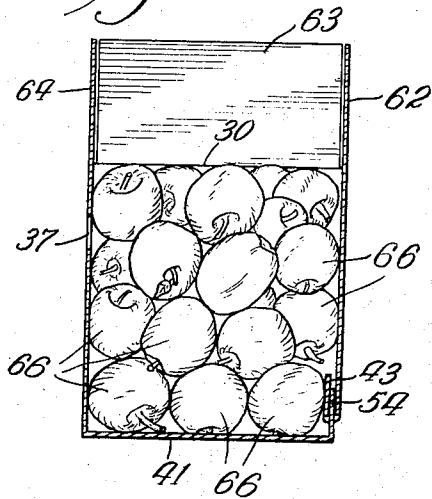


Fig. 5

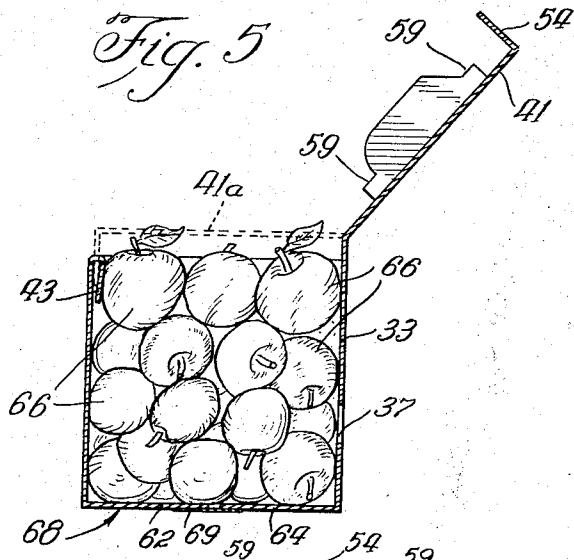


Fig. 1

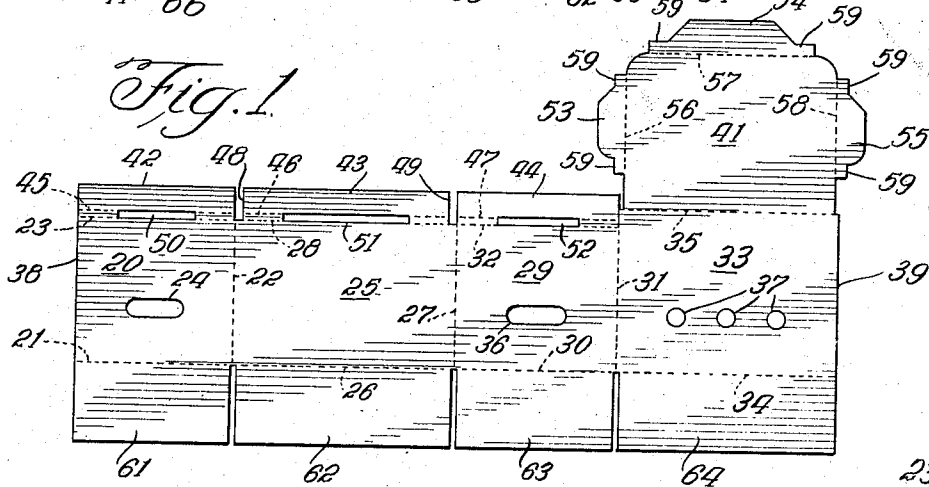


Fig. 2

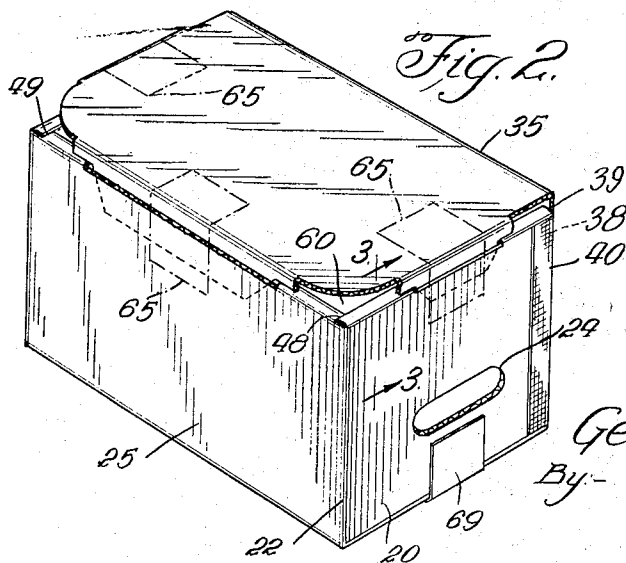
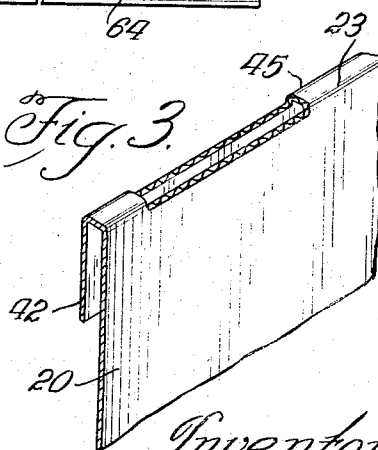


Fig. 3



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2 Sheets-Sheet 2

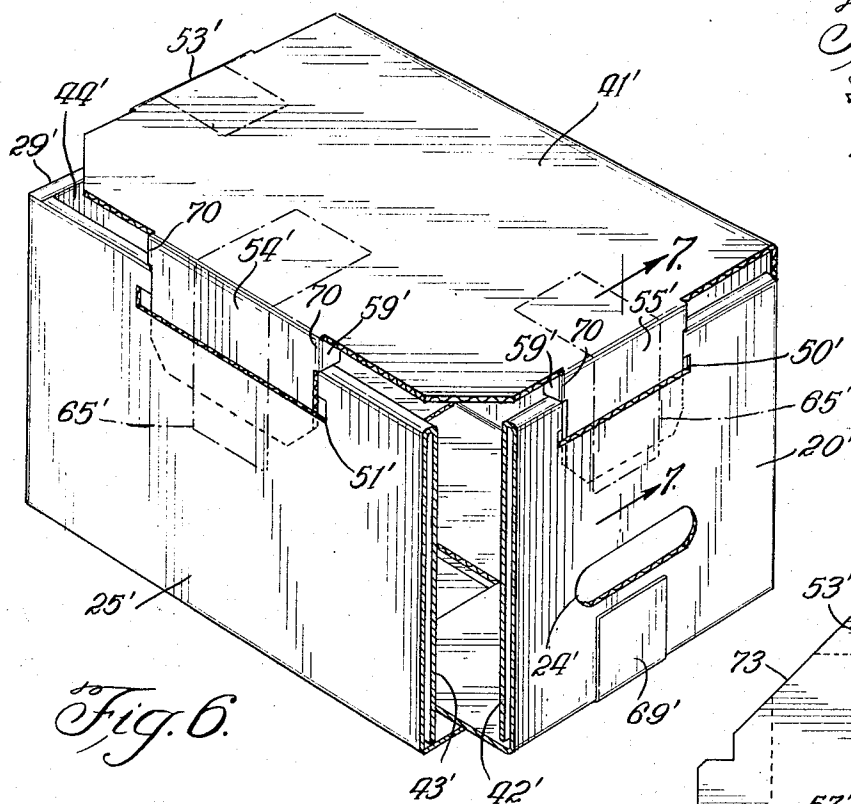


Fig. 6.

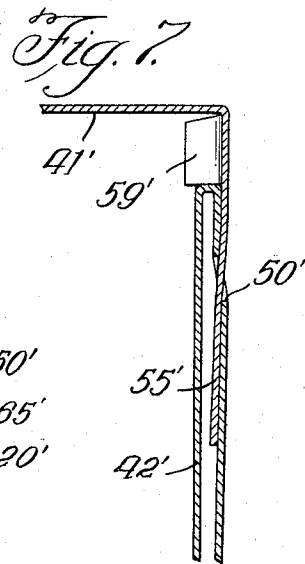


Fig. 7.

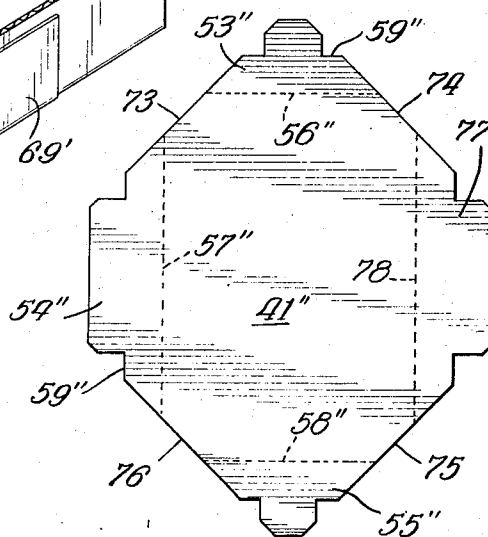


Fig. 9.

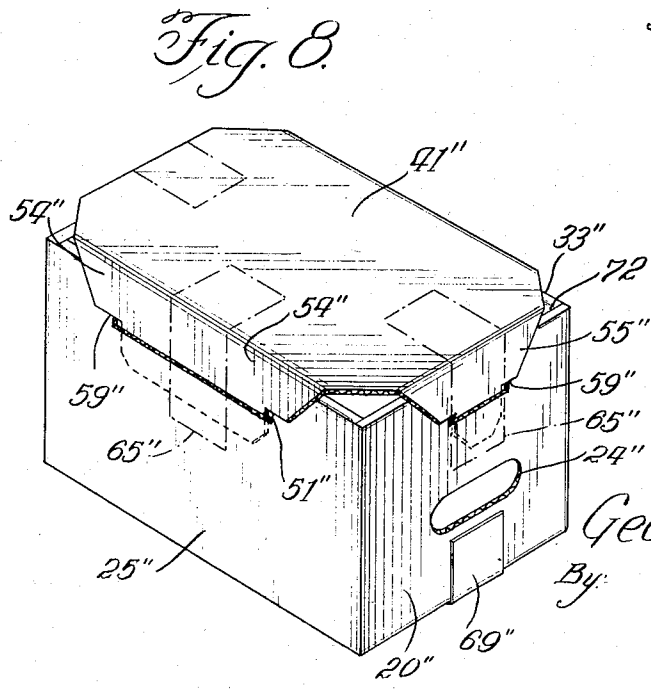


Fig. 8.

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UNITED STATES PATENT OFFICE

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PACKING BOX

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Application November 25, 1940, Serial No. 366,940

9 Claims. (Cl. 229—38)

This invention has to do with a shipping container or the like and relates more particularly to improvements in a cover and fastening means for securing the same in spaced relation with respect to an access opening. The invention further contemplates a novel reinforced wall structure cooperation with said fastening means in maintaining the cover in place.

An object of the present invention is the provision of a new packing box or container that is especially suited for the packing of shrinkable merchandise such as apples in a manner that when the merchandise is on display subsequently to such shrinkage the edge about the container access opening will be no higher than the exposed surface of the merchandise, and thus avoid the appearance of short measure.

A further object of the present invention is the provision of an improved box of which the cover member for the access opening is provided with securing flaps insertable into apertures in side walls of the box when the cover member is in place, and spacer means for predeterminedly positioning the cover member axially outwardly of such opening.

A still further object of this invention is the provision of a packing box as the above that is adapted to be formed from a single blank of sheet material, and of a novel blank shaped and scored to facilitate bending of the same into the formation of such box.

Other desirable objects encompassed by and inherent to the present invention will later appear.

In the drawings:

Fig. 1 is a plan view of a blank foldable to form a box embodying one form of the present invention;

Fig. 2 is a perspective view of a box made by folding the blank shown in Fig. 1;

Fig. 3 is a fragmentary sectional view illustrating a side wall of the box and taken substantially upon the line 3—3 of Fig. 2;

Fig. 4 is a transverse sectional view taken through the box during the filling process and illustrating the box while inverted;

Fig. 5 is a transverse sectional view showing the box with its cover member turned backwardly for uncovering the access opening and illustrating the degree to which the box may be filled subsequently to the shrinking of its contents;

Fig. 6 is a perspective view of a modified form of box, there being a corner section cut away to clearly show the structure;

Fig. 7 is a fragmentary view taken on the line 7—7 of Fig. 6;

Fig. 8 is a perspective view of a third box constructed according to the present invention; and

Fig. 9 is a plan view of a separate cover member which is a part of the assembly shown in Fig. 8.

That form of the invention shown in Figs. 1 to 5 inclusive will first be described. This box or container is made from the blank shown in Fig. 1 and which may be made of paper, cardboard or any suitable material possessing sufficient strength and rigidity. For convenience and clarity the various walls and other parts of the assembled box are designated by the same respective reference characters as the sections of the blank from which they are formed.

The blank, Fig. 1, comprises a section 20 for forming an end side wall of the box. This wall section 20 is bounded by score lines 21, 22 and 23 and contains a hand hole opening 24. Adjacent to the end wall section 20 and separated therefrom by the fold line 22 is a front side wall section 25 which is also bound by fold lines 26, 27 and 28. Another end side wall section, 29, is bounded by said fold line 27 and fold lines 30, 31 and 32, whereas a back side wall section 33 is bounded by said fold line 31 and fold lines 34 and 35. A hand hole opening 36 is provided in the wall section 29 and ventilation holes 37 are provided in the back wall section 33.

In assembling the box the side wall sections 20, 25, 29 and 33 will be folded about the fold lines 22, 27 and 31 at right angles to each other to effect a rectangular enclosure pursuant to which the outer edge 38 of the section 20 and the outer edge 39 of the section 33 will be disposed contiguously. Thereupon an adhesive strip 40, Fig. 2, will be applied mutually along the marginal portions of these edges 38 and 39 to retain the blank in the thus far assembled condition.

Reinforcing flaps 42, 43 and 44 are next bent over inwardly of their respective sections or side walls 20, 25 and 29 about the fold lines 23, 28 and 32 and thence downwardly about fold lines 45, 46 and 47 in adjacent parallelism with their respective side walls. This part of the assembly is illustrated by the reinforcing flap 42 in Fig. 3 where it is shown bent inwardly of the wall 20 about the fold line 23 and thence downwardly about the fold line 45 alongside of and parallel with said wall 20. The reinforcing flaps 42 and 44 are first bent inwardly and downwardly and thereafter the reinforcing flap 43 upon the front wall 45 is bent inwardly and downwardly, there being sec-

tions cut away from the ends 48 and 49 of the flap 43 to permit this flap to clear the inwardly disposed flaps 42 and 44; see Figs. 1 and 2. Elongated apertures 50, 51 and 52 are provided in the blank so that the upper edges of the walls 20, 25 and 29 can receive cover closure flaps presently to be described.

A cover section or member 41, separated from the back wall 33 by the fold line 35, is provided with three closure flaps 53, 54 and 55 which are separated from said cover member by fold lines 56, 57 and 58. Each of the closure flaps has associated therewith a pair of shoulder sections 59 which also depend from the cover member at the fold lines 56, 57 or 58. This cover member 41 is arranged in closing relation with respect to the access opening 60 of the box by bending it forwardly about the fold line 35 while the securing flaps 53, 54 and 55 are bent inwardly 90 degrees about their respective fold lines 56, 57 and 58 wherefore these closure flaps are projected respectively into the apertures 52, 51 and 50. The distance the closure flaps are projected into said wall apertures is limited by the shoulder or tab-like sections 59. It will be noted in Figs. 1 and 2 that the upper edge of the wall 33 projects slightly above the upper edges of the walls 20, 25 and 29, and the amount of this marginal projection of the back wall is equal to the distance between the outer edges of the shoulders or tabs 59 and their respective fold lines 56, 57 and 58 so that when the cover member 41 is in closing relation with the access opening 60, said member will be perpendicular to each of the side walls 20, 25, 29 and 33 and said cover member will be selectively spaced axially outwardly of said access opening. Retaining strips 65 are adhesively applied commonly to the cover member, to the exposed portions of the closure tabs and to the box side walls to secure the cover member in place.

The thus far assembled box will be arranged in the inverted position as illustrated in Fig. 4 with the bottom flaps 61, 62, 63 and 64 projecting upwardly preparatory to filling. When the box is to be packed with relatively large articles 66 such as apples the custom may be followed of placing upon the inverted cover member 41 a layer of articles of uniform size and shape and placing the remainder on top of this layer. And after the box has been loaded sufficiently for the upper surface to level off substantially with the now upwardly disposed lower edges of the side walls as illustrated in Fig. 4 the flaps 61, 62, 63 and 64 are folded over about their respective fold lines in the usual manner for effecting a bottom wall 68; see Fig. 5. The flaps 61 and 63 are folded over first and then the flaps 62 and 64 are folded over against the outer sides of the flaps 61 and 63 whereupon an adhesive strip 69 is applied along the outer and adjacent marginal edges of said strips 62 and 64 and over the end walls of the box as illustrated in Figs. 2 and 5.

It will be seen that in the finished package the contents will be enclosed firmly between the side walls and between the bottom wall 68 and the cover member 41. Because of the added support provided for the side walls by the reinforcing flaps 42, 43 and 44 the box offers considerable resistance to the force due to the weight of the contents. During shipment and storage of the filled package the contents may shrink as illustrated in Fig. 5 where the closed position of the cover member 41 is represented by the dotted line 41a. However, the capacity of the box can be made sufficient by gauging the distance of the marginal

projection of the side wall 33 upwardly with respect to the other side walls and correspondingly gauging the length of the tab-like stop members 59 with respect to the character and amount of the shrinkage likely to occur in the contents, so that subsequent to such shrinkage the level of the contents will be substantially on the level with the upper edges of the side walls 20, 25 and 29. Consequently upon opening of the box as illustrated in Fig. 5 for display to prospective purchasers the box will avoid the appearance of stinted measure.

Handling of the box is facilitated by the hand holes as 24 through which the fingers may be inserted for obtaining a firm grasp.

The second form of the invention, shown in Figs. 6 and 7, is made from a blank substantially like that just described, and therefore the parts in this second form corresponding to those shown in Figs. 1 to 5 inclusive are designated by the same respective reference characters with a prime added. It will be noticed in this second form of the invention that the apertures 50' and 51' are located in the outer parts of the side walls 20' and 25' instead of in the upper edges thereof. This is also true with respect to an aperture (not shown) in the side wall 29' and corresponding to the aperture 52. The side walls of the box shown in Figs. 6 and 7 further differ from the first embodiment in that the reinforcing flaps 42', 43' and 44' are increased in length so that they reach downwardly to the bottom of the completely assembled box and thereby provide side walls of greater strength.

Tab-like stop members 59' depend from the base portions of the securing flaps 53', 54' and 55' and are separated therefrom by fold lines 70. At the time the securing flaps are inserted into their respective apertures as 50' the tabs 59' will be bent inwardly about the fold lines 70 so as to abut against the upper edges of the side walls as 25' and thus predeterminedly space the cover member 41' axially outwardly of the access opening. Subsequent to this insertion of the securing flaps into their side wall apertures, adhesive strips 65' may be applied jointly to these flaps and to the side walls and cover member of the box for maintaining the assembly. Securement of the cover member is also contributed to by the stop tabs 59' by bearing against the upper edges of their associated walls.

In that form of the invention shown in Figs. 8 and 9 the bottom and side walls, with the exception of the back wall 33'' are formed similarly to the corresponding walls of the box shown in Figs. 6 and 7. The back wall differs only in that it also carries a reinforcing flap 72 similar in all respects to the reinforcing flaps as 43' of the second embodiment and of which a portion is exposed in Fig. 8. Insofar as the parts of this box correspond to the parts of the first two embodiments of the invention they are designated by the same reference characters with a double prime added. In this third embodiment the cover member 41'' is made of a separate piece of sheet material of the form shown in Fig. 9. The corners of the cover member 41'' are cut diagonally as indicated at 73, 74, 75 and 76, and securing flaps 53'', 54'', 55'' and 77 are separated from the edges of this cover member by fold lines 56'', 57'', 58'' and 78. Said cover member, is assembled with the box side walls by bending the flaps as 54'' downwardly at right angles and inserting the same downwardly and inwardly through the side wall apertures as 51''. An

aperture (not shown) similar to the aperture 51'' is provided in the rear wall 33'' for the securing flap 77. Shoulders 59'' abut against the material at the ends of the apertures as 51'' and thereby locate the cover member the desired distance axially outwardly of the access opening. Adhesive strips 65'' may be applied to the securing flaps and to the adjacent sections of the side walls and cover member for maintaining the cover member in place. Following assembly of the cover member in the manner described the box may be inverted in some such manner as illustrated in Fig. 4 and filled prior to closing its bottom flaps.

While I have herein shown and described but three specific embodiments, it should be understood that the invention extends to other arrangements, details and structures falling within the spirit thereof.

I claim:

1. In a box having an access opening, a plurality of side walls having edges bounding respective edges of said access opening, at least one of said walls having an aperture associated therewith; a cover member for said access opening, said cover member having edges respectively corresponding to said wall edges and said cover member being disposable in a closing relation with said opening wherein said cover member and all of its said edges are spaced axially outwardly of said opening a short distance to provide an inspection space about the edge of such opening, a closure flap at the edge of said cover member corresponding to the edge of said apertured wall and having stop means thereon, said closure flap being insertable through said aperture when the cover member is in said closing relation with the access opening, and said stop means being abutable with the wall at an edge of said aperture to limit the distance the flap extends thereinto and to predetermine said axial spacing of the cover member from said edge of said wall.

2. In a box having an access opening, a plurality of side walls having edges bounding respective edges of said access opening, there being elongated apertures respectively within said walls and arranged substantially parallel with said wall edges, a cover member for said access opening, said cover member having edges respectively corresponding to said wall edges and said cover member being disposable in a closing relation with said opening wherein it and all of its said edges are spaced axially outwardly of said opening a short distance to provide an inspection space about the edge of such opening, closure flaps on said cover member, stop means on said closure flaps, said flaps being respectively insertable through said apertures when the cover member is in said closing relation with the access opening, and said stop means being abutable against portions of said walls to limit the extension of the flaps through said apertures and to predetermine said axial spacing of the cover member from said wall edges.

3. In a box having an access opening, a plurality of side walls having edges bounding respective sides of said opening, one of said side walls projecting outward axially of such opening more distantly than the other of said walls, certain of said other walls each being provided with an aperture, a cover member for said access opening and comprising a flap connected with said one side wall and separated therefrom by a score line coinciding with said outwardly projecting edge, said cover member also including closure

flaps insertable through said apertures when the cover member is disposed in closing position with respect to said opening, said cover member also including tab-like stop means pivotable with said flaps into position for abutment against at least one of said other walls, said stop means being spaced such a distance farther from the cover member than from the upper edges of said other walls when the cover member is in closing relation with said opening as to determine that in such closing relation said member is spaced from the edges of said other walls axially of said opening a distance substantially equal to the additional axial distance said edge of the one wall is projected with respect to said edges of the other walls.

4. In a box having an access opening, a plurality of side walls having edges bounding respective sides of said opening, one of said side walls projecting axially outwardly of said opening a marginal distance with respect to such edges of the other walls, certain of said other walls having apertures respectively therein, a cover member comprising a flap connected with said one wall and separated therefrom by a fold line coinciding with said projecting edge, closure flaps depending from certain edges of said cover member and including shoulders, said closure flaps being insertable respectively into said apertures when said cover member is in the closing position over the access opening, and said shoulders being abutable against the body of said walls immediately about said apertures to determine such closing position as one in which the cover member is spaced from said edges of said other walls a distance axially outwardly of said access opening substantially equal to said marginal distance.

5. In a box having an access opening, a plurality of side walls having edges bounding respective sides of said opening, one of said side walls projecting axially outwardly of said opening a marginal distance with respect to such edges of the other walls, certain of said other walls having apertures respectively therein, a cover member comprising a flap connected with said one wall and separated therefrom by a fold line coinciding with said projecting edge, closure flaps depending from certain edges of said cover member and foldable substantially normally thereto, spacer tabs upon said closure flaps and foldable normally to their respective flaps into positions wherein they are also normal to said cover member when the flaps are folded normally to such member, said closure flaps being insertable respectively into said apertures when the cover member is in the closing position over the access opening, and said tabs while folded as aforesaid and while the closure flaps are so inserted being abutable against the said edges of said certain walls to determine such closing position of the cover member as one in which it is spaced from said edges of said other walls a distance axially outwardly of the access opening substantially equal to said marginal distance.

6. In a box having an access opening, a plurality of side walls having edges bounding respective edges of said access opening, a plurality of said side walls having apertures respectively therein, a cover member for said access opening but completely separate from and comprising no depending part of any of said walls, said cover member being disposable in a closing relation with said access opening wherein said cover member is spaced a short distance axially out-

wardly of said opening to provide an inspection space about the edge of such opening, closure flaps on said cover member respectively corresponding to said side wall apertures and having stop means respectively thereon, said closure flaps being insertable through their respective side wall apertures when the cover member is in said closing relation with the access opening, and said stop means being abutable against respective portions of said side walls to limit the distance their flaps extend into said apertures and to predeterminedly space said cover member axially outwardly from said opening while in said closing relation therewith.

7. In a box having an access opening, a plurality of side walls having edges bounding respective edges of said access opening, certain of said walls having an aperture associated therewith, a cover member for said access opening and disposable in a closed relation therewith wherein said cover member is spaced a short distance axially outwardly of the opening within a plane substantially parallel with the plane of said opening, said cover member having wall edge portions respectively in spaced registration with the apertured walls axially of the opening while in said closed relation and intermediate edge portions concurrently also spaced axially outwardly of the opening to expedite inspection of the box contents, closure flaps pivotally depending from said wall edge portions of the cover member for insertion into the apertures to retain the cover member in the closing relation, stop means on said flaps, said flaps being pivotal substantially perpendicularly to the cover member for insertion through said apertures when the cover member is in said closing relation, and said stop means being pivotal with the flaps into position for abutment against portions of said walls to limit the distance the flaps extend into said apertures and thereby predetermine the spacing of the cover member axially of the opening.

8. In a box having an access opening, a plurality of side walls having edges bounding respective edges of said access opening, certain of said walls having an aperture associated therewith, a cover member for said access opening, and disposable in a closed relation therewith wherein said cover member is spaced a short distance axially outwardly of the opening within a plane substantially parallel with the plane of said opening, said cover member having wall edge portions respectively in spaced registration

with the apertured walls axially of the opening while in said closed relation and intermediate edge portions concurrently also spaced axially outwardly of the opening and radially inwardly thereof to expedite inspection of the box contents, closure flaps pivotally depending from said wall edge portions of the cover member for insertion into the apertures to retain the cover member in the closing relation, stop means in the form of abutment surfaces on said flaps and spaced from said cover member a predetermined distance, said flaps being pivotal substantially perpendicularly to the cover member for insertion through said apertures when the cover member is in said closing relation, and said stop means being pivotable with said flaps into position for abutment against portions of said walls to limit the distance the flaps extend into said apertures, said abutting surfaces, in said closing relation for the cover member, being spaced less distantly from the top of the walls than said predetermined distance, to thereby predetermine the spacing of said cover member axially of the opening.

9. In a box having an access opening, a plurality of side walls having edges bounding respective edges of said access opening, reinforcing flaps upon said edges of certain of said walls and bent inwardly of the box in adjacent parallelism with their respective walls, said certain walls having apertures therein communicating with the spaces between said walls and their reinforcing flaps, a cover member for said box, said cover member having edges respectively corresponding to said side wall edges and said cover member being disposable in a closing relation with said opening wherein it and its edges are spaced axially outwardly of the opening a short distance to provide an inspection space about the edge of such opening, said cover member including closure flaps upon its edges corresponding to the apertured wall edges and insertable through said apertures into said spaces when the cover member is in said closing relation with said opening, and tab-like stop means on said closure flaps and spaced from said cover member for abutment with said apertured walls to predeterminedly space the cover member from said wall edges axially of the opening and thereby support the same in said closing relation while said stop means are spaced more distantly from the cover member than from the wall edges.

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