

Dec. 22, 1959

C. R. ZEITZER  
TAMPER PROOF BOX

2,918,205

Filed June 23, 1958

2 Sheets-Sheet 1

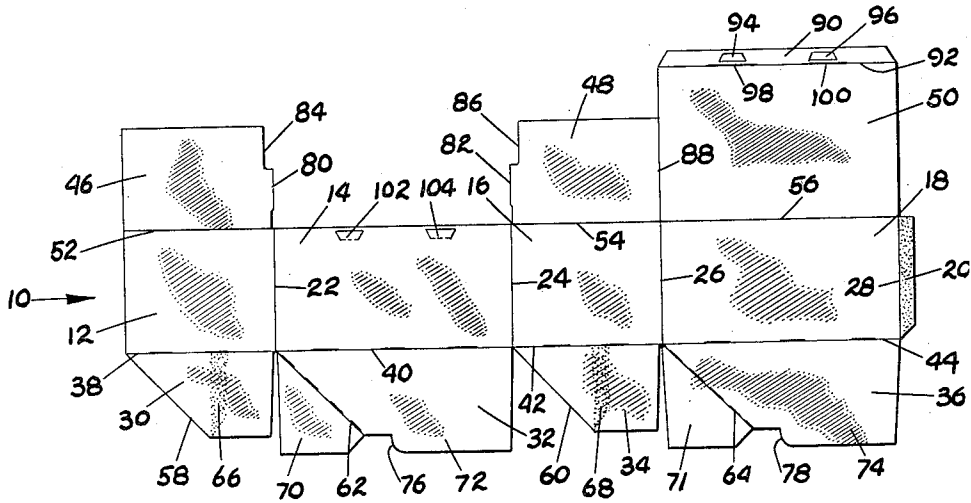


FIG. 1

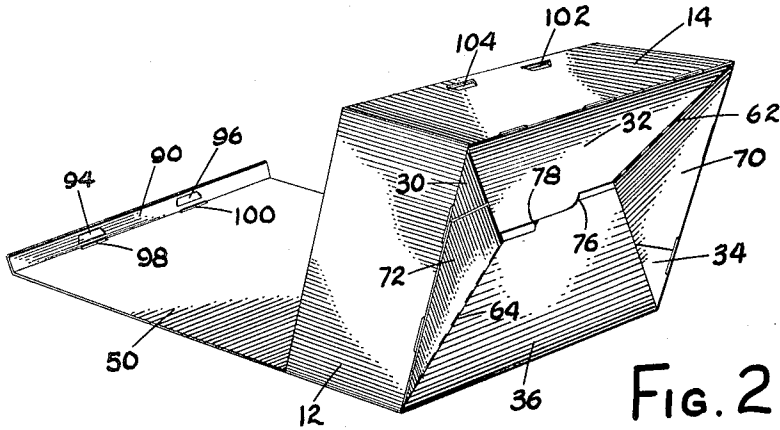


FIG. 2

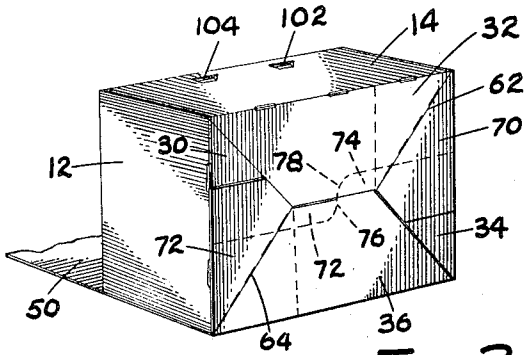


FIG. 3

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2 Sheets-Sheet 2

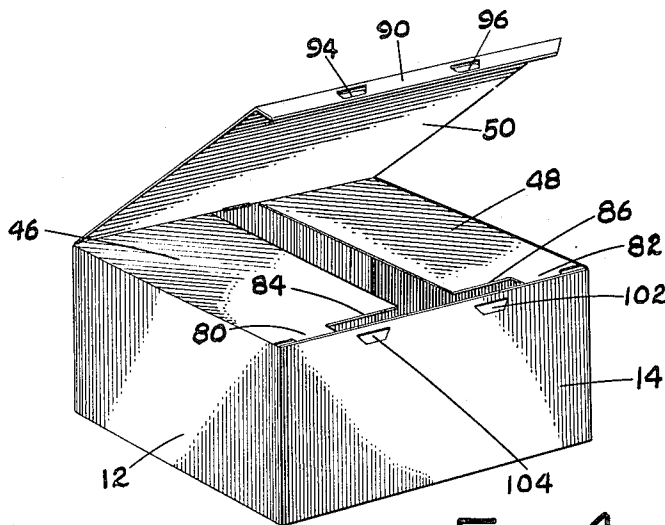


FIG. 4

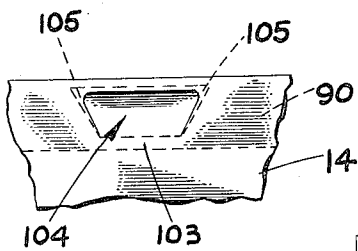


FIG. 7

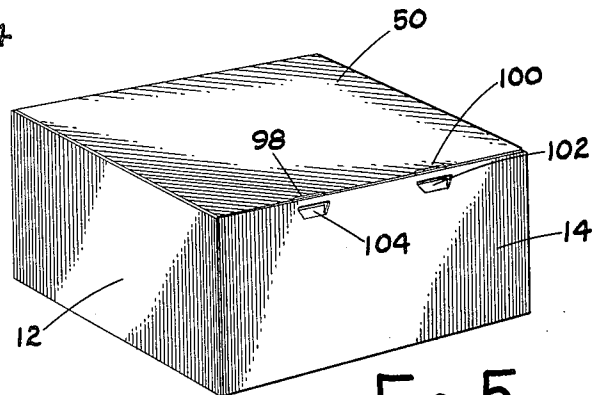


FIG. 5

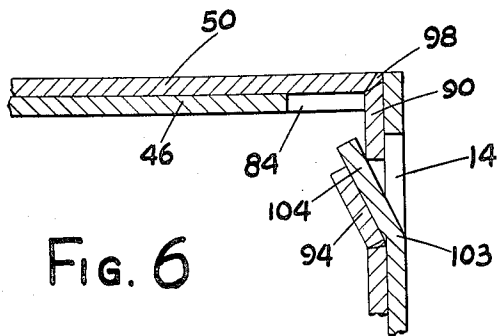


FIG. 6

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2,918,205

## TAMPER PROOF BOX

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Application June 23, 1958, Serial No. 743,743

11 Claims. (Cl. 229—45)

This invention relates to paper board boxes in general and more particularly to paper board boxes having a tamper proof cover lock.

Paper board boxes are frequently used to ship goods in certain given quantities; such as in pairs, by the dozen, etc. Where such boxes are of reasonable size, they are individually handled and are not repacked within another container. Such individual boxes are repeatedly handled in transit and are quite subject to pilfering. This is particularly so, and proves most troublesome, in regard to consumable goods such as candy, ice cream bars, and the like. The pilfering of goods from one of the boxes is usually not discovered until it is opened for distribution at the retail outlet. This is most embarrassing to the manufacturer, distributor, and wholesaler, though each blames the other. However the retail distributor cannot recover his loss unless he can fix the blame for pilfering.

Although separate locking means may be used on these paper board containers, such as tape, string, etc., this is an added expense in packaging which the product manufacturer does not wish to bear. Accordingly, the locking means should be such as can be produced with the container, without added expense, and can be used in packaging without appreciable time or effort.

It is an object of this invention to disclose a suitable paper board box for shipping goods which are subject to pilfering, and to provide means for discouraging pilfering as well as for detecting the unlawful act. The means hereinafter disclosed includes the use of a tamper proof lock for the cover of the paper board container. Such means is produced as a part of the container and is readily operative in the normal packaging procedure. Once the cover has been locked in place its unauthorized opening may be readily detected. Accordingly, the manufacturer may close the box after being assured of the proper quantity having been placed therein, and the retail outlet may readily know if the box has been disturbed before it is accepted. If the box has been opened and goods have been removed, the cost of the pilfering can readily be laid to the distributor of the goods.

Boxes which are used for the purpose mentioned may be either of two kinds. One form of box is that which is assembled by the manufacturer at the site of packaging. Such a box is generally formed in its erected state. Another form of box is one which includes manufacturer's glue joints and is collapsible for shipment in a knock-down form. This type of box is usually erected at the site of packaging. In forming either of the boxes mentioned it is necessary to give the usual considerations to having a minimum scrap loss, ease of manufacture, assembly, etc.

The paper board box hereafter described is one which is made from a flat paper board blank to include manufacturer's glue joints and is such as is preassembled in a collapsed form and is erected, ready for use, at the site of packaging. As will be described, the box includes a collapsible bottom having interlocking bottom closure

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flaps. The cooperative bottom closure flaps fold within the box form when it is in its collapsed state. Accordingly, when the box is erected and has been filled with goods access to the box from its bottom portion is virtually impossible. The form of bottom closure which is hereinafter described is generally known in the art and is described principally to set forth the preferred combination of a self-locking collapsible bottom closure with the proposed cover lock.

The cover lock of this invention may be readily used, as will be shown, with the collapsible form of paper board box, having the interlocking bottom closure structure, or with the box which is formed at the site of packaging.

The cover lock of this invention makes use of punch out tabs which are formed within the front face of the box and are hinged thereto. The cover of the box includes a tuck portion having punch outs which are smaller than the punch out tabs. With the cover tuck disposed behind the front wall of the box the tabs may be forced through the punch outs and will be lockingly engaged therebehind; thus holding the cover tuck lockingly engaged to the front wall of the box member.

The side wall cover closure flaps are formed to include shoulder portions which serve to hold the tuck engaged to the front wall of the box during the interlocking of the tabs through the punch outs. The corners of the closure flaps are cutaway to avoid interference with the locking operation. Other features are included to assist in the cover interlocking operation, as will be described.

Once the front wall tabs are lockingly engaged through the cover tuck the cover cannot be opened without external visual evidence of damage. Thus, any pilfering in shipment can be readily detected before the goods are accepted.

In the drawings:

Fig. 1 is a plan view of the paper board blank used in forming a paper board box to include the features of this invention.

Fig. 2 is a perspective view of a paper board box made from the blank of Fig. 1 and showing the bottom portion in a partially erected condition.

Fig. 3 is a perspective view of the paper board box of Fig. 2 showing the bottom structure as finally erected.

Fig. 4 is a perspective view of the paper board box including the features of this invention and showing the cover flaps disposed over the open portion of the box.

Fig. 5 is a perspective view of the paper board box, as closed, and showing the tamper proof cover lock of this invention in use.

Fig. 6 is an enlarged cross sectional view through a fragmentary part of the paper board box and in the vicinity of the tamper proof lock feature.

Fig. 7 is an enlarged front view of the tamper proof cover lock as shown on a partial segment of a box including such invention.

The paper board blank 10 is shown to include contiguous and successively disposed portions forming a side wall 12, front wall 14, side wall 16, back wall 18, and a glue flap 20. The wall portions are separated by fold lines 22, 24 and 26. The glue flap is separated from the back wall 18 by the fold line 28. Bottom closure flaps 30, 32, 34 and 36 are connected to the wall portions 12, 14, 16 and 18 by fold lines 38, 40, 42 and 44 respectively. Cover closure flaps 46, 48 and 50 are connected to the wall portions 12, 16 and 18 by fold lines 52, 54 and 56. The fold lines 52, 54 and 56, just mentioned, also serve as hinge lines for the cover closure flaps.

The bottom closure flaps 30, 32, 34 and 36 are formed to provide a self-erecting, inwardly folding, interlocking

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bottom closure structure. The bottom flaps, as engaged together, are shown in a partially closed condition by Fig. 2, and as finally closed by Fig. 3.

The side wall bottom closure flaps 30 and 34 have one side cut at an angle as at 58 and 60. The other bottom closure flaps 32 and 36 include fold lines 62 and 64 disposed at a similar angle. The fold lines 62 and 64 include relief cuts for greater ease in folding and erecting the bottom structure. Manufacturer's glue lines are provided on the side wall bottom closure flaps 30 and 34 at 66 and 68. Such glue lines are adapted to hold the bottom closure flaps 30 and 32 engaged together, and the flaps 34 and 36 engaged, as the one is overlapped on the other. The glue lines 66 and 68 are such as do not extend over the fold lines 62 and 64 of the larger bottom closure flaps 32 and 36 respectively. In Fig. 1 the glue lines are on the under surface of the blank.

The form of bottom structure disclosed is generally well-known. For this reason no attempt has been made to describe the structure in too great detail. It is believed that the following description of the forming of the bottom structure will be sufficient for those acquainted with the art to understand the general type of self-erecting interlocking bottom structure which is preferred for use with the tamper proof cover lock of this invention.

In forming the bottom structure the bottom cover flaps 30, 32, 34 and 36 are folded against the wall portions 12, 14, 16 and 18 respectively. Their fold lines 38, 40, 42 and 44 include relief cuts for greater ease in folding. The corners 70 and 71 of closure flaps 32 and 36 are next folded back on themselves. When the wall portion 18, and bottom closure flap 36 in its folded condition, is folded on line 26 over upon wall portion 16, the bottom closure flaps 34 and 36 are engaged together by the glue line 68 coming into engagement with the corner portion 72 of the bottom closure flap 36. This same operation is repeated on the other side of the blank as regards the bottom closure flaps 30 and 32; the former being folded over on the latter. In the folding operation the glue flap 20 is engaged to the side wall member 12. This completes the assembly operation as regards the walls of the box and the bottom structure.

The box is erected to its rectangular form by raising the side wall portions 12 and 16 to right angle positions relative to the front and back walls 14 and 18. This also causes the bottom structure to be erected. The bottom closure flaps 32 and 36 include parts 72 and 74 which overlap each other in the erection of the bottom structure. The closure parts 72 and 74 are disposed on complementary opposite sides of the box as the bottom structure is erected. The one is received behind the other for cooperative interlocking engagement. This is best shown by Figs. 2 and 3. The closure flap parts 72 and 74 include rounded corners 76 and 78 which are frictionally engaged together in the erection of the box.

As has been said, this structure is generally well-known. Other interlocking self-erecting bottom structures might also be used. The structure described is for the purposes of showing a completely tamper proof box structure as used with the tamper proof cover lock of this invention.

The side wall cover closure flaps 46 and 48 of the blank 10 include shoulder portions 80 and 82. The shoulder portions 80 and 82 are disposed on the side wall cover closure flaps next adjacent the front wall 14. The corners of the closure flaps 46 and 48, over the shoulder portions 80 and 82, are cutaway as at 84 and 86.

The back wall cover closure flap 50 is separated from the side wall cover closure flap 48 by a severance line 88. The cover flap 50 includes a cover tuck 90 provided at its free end. The tuck 90 is separated from the flap 50 by a fold line 92. Within the tuck 90 are provided punch outs 94 and 96. The punch outs are formed by perforations which enable them to be completely separated from the tuck, or partially separated therefrom, with relative ease, as will be later described. Relief cuts

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98 and 100 are formed in the fold line 92 immediately next adjacent the punch outs 94 and 96.

The front wall portion 14 of the blank 10 includes punch out tabs 102 and 104. These tabs are disposed near the upper edge of the front wall 14 and are spaced from the side wall portions 12 and 16. The tabs 102 and 104 are hinged at their bottom edge 103 to the front wall 14 and include ear portions 105 at their uppermost side edges, as is best shown in the enlargement of Fig. 7.

The punch outs 94 and 96 are disposed to complement the hinged tabs 104 and 102, respectively, when the tuck 90 is received behind the front wall 14. The punch outs 94 and 96 are smaller than the tucks 104 and 102. Accordingly, they are adapted to receive the tabs 104 and 102 in locking engagement therethrough, as shown in Fig. 6. The larger size of the tabs, and particularly the ear portions, causes the tabs to be engaged behind the cover tuck 90; as best shown in Fig. 7.

When the box is erected for use, as shown by Fig. 4, the side wall cover flaps 46 and 48 are received over the opening of the box and partially close the opening. The shoulder portions 80 and 82 of the side wall closure flaps 46 and 48 are received behind the front wall 14 between the side walls, 12 and 16, and the tabs, 102 and 104, respectively. As the cover flap 50 is received over the box, the tuck 90 is received behind the front wall 14 and between the front wall and the shoulder portions 80 and 82 of the side wall closure flaps. The shoulders 80 and 82 engaged the tuck 90 to the front wall 14. The shoulders are received between the punch outs 96 and 94 and the ends of the cover tuck. The cutaway portions 84 and 86 of the side flaps are disposed immediately behind the punch outs and tabs.

With the cover flap 50 closed as is shown by Fig. 5, the tabs 102 and 104 can be readily pushed through the punch outs 96 and 94 respectively. The shoulder portions 80 and 82 hold the tuck engaged to the front wall 14. This holds the tuck while the tabs are being forced through the punch outs. The relief cuts 98 and 100 enable the part of the cover tuck which includes the punch outs 96 and 94 to yield laterally without buckling the top cover, or bending the tuck, as necessary in forcing the tabs through the punch outs.

The cutaway portions 84 and 86 of the side wall closure flaps 46 and 48 assure that there will be no interference with the interlocking of the tabs 102 and 104 through the punch outs 96 and 94.

Once the tabs 102 and 104 have been engaged through the punch outs 96 and 94, the cover portion 50 is virtually impossible to remove without destroying the tabs. Anyone attempting to gain access to the paper board box through the cover would have to apply a force on the tabs 102 and 104 or the cover tuck 90 which would cause one or the other to tear away. Thus, visual inspection of the box would immediately reveal that it had been tampered with.

While a preferred embodiment of this invention has been described, it will be understood that other modifications and improvements may be made thereto. Such of these modifications and improvements as incorporate the principles of this invention are to be considered as included in the hereinafter appended claims unless these claims by their language expressly state otherwise.

I claim:

1. A box blank suitable for forming a tamper proof box when erected, and comprising; contiguous front, side, and back wall forming portions, a glue flap on the last of said wall portions for engagement with the first of said wall portions, intercooperative bottom closure flaps connected to the lower edges of said wall portions, cover closure flaps connected to the upper edge of said side and back wall portions, a cover tuck provided on the end of said back wall cover flap, a fold line separating said cover tuck from said back wall cover flap, punch out tabs formed from said front wall portion near the upper edge

5 thereof and spaced from the side edges of said front wall portion, said tabs being hinged to said front wall portion at their lower edge and including divergent ears near the upper edge thereof, punch outs provided in said cover tuck and disposed for cooperation with said tabs upon receipt of said tuck next adjacent said front wall portion in the erection and use of said box, and shoulder portions provided on the side edges of said side wall cover flaps adjacent said front wall portion.

10 2. A box blank suitable for forming a tamper proof box when erected, and comprising; contiguous front, side, and back wall forming portions, a glue flap on the last of said wall portions for engagement with the first of said wall portions, intercooperative bottom closure flaps connected to the lower edges of said wall portions, cover closure flaps connected to the upper edge of said side and back wall portions, a cover tuck provided on the free end of said back wall cover flap, a fold line separating said cover tuck from said back wall cover flap, a pair of punch out tabs formed from said front wall portion near the upper edge thereof and spaced from the side edges of said front wall portion said tabs being hinged to said front wall portion at their lower edge and including divergent ears near the upper edge thereof, a pair of punch outs provided in said cover tuck and disposed for cooperation with said tabs upon receipt of said tuck next adjacent said front wall portion in the erection and use of said box, relief cuts provided in said fold line immediately adjacent said punch outs, shoulder portions provided on the side edges of said side wall cover flaps adjacent said front wall portion.

3. A box blank suitable for forming a tamper proof box when erected, and comprising; contiguous front, side, and back wall forming portions, a glue flap on the last of said wall portions for engagement with the first of said wall portions, intercooperative bottom closure flaps connected to the lower edges of said wall portions, cover closure flaps connected to the upper edge of said side and back wall portions, a cover tuck provided on the end of said back wall cover flap, a fold line separating said cover tuck from said back wall cover flap, a pair of punch out tabs formed from said front wall portion near the upper edge thereof and spaced from the side edges of said front wall portion said tabs being hinged to said front wall portion at their lower edge and including divergent ears near the upper edge thereof, a pair of punch outs provided in said cover tuck and disposed for cooperation with said tabs upon receipt of said tuck next adjacent said front wall portion in the erection and use of said box, relief cuts provided in said fold line immediately adjacent said punch outs, shoulder portions provided on the side edges of said side wall cover flaps adjacent said front wall portion, and corner cut outs provided in said side wall cover flaps on the side edges and inclusive of the part thereof received behind said punch outs and tabs upon the erection of said box.

4. A tamper proof box, comprising; interconnected front, side, and back walls, bottom closure flaps formed from said walls and interlocked together, cover closure flaps connected to said back and side walls, a cover tuck provided on the end of said back wall cover flap, punch out tabs formed within said front wall near the upper edge thereof and spaced from the side edges thereof, said tabs being hinged to said front wall at their lower edges and including upwardly divergent ears, shoulder portions formed on the side edges of said side wall cover flaps next adjacent said front wall, said shoulder portions being disposed for engagement with said front wall between said tabs and the side edges of said front wall, and punch outs formed in said cover tuck and disposed to complement said tabs upon receipt of said tuck behind said front wall, said punch outs being smaller in size than said tabs for lockingly engaging said tab ears as received therethrough.

5. A tamper proof box, comprising; interconnected front, side, and back walls, bottom closure flaps formed

6 from said walls and interlocked together, cover closure flaps connected to said back and side walls, a cover tuck provided on the end of said back wall cover flap, punch out tabs formed within said front wall near the upper edge thereof and spaced from the side edges thereof, said tabs being hinged to said front wall at their lower edges and including upwardly divergent ears, shoulder portions formed on the side edges of said side wall cover flaps next adjacent said front wall, said shoulder portions being disposed for engagement with said front wall between said tabs and the side edges of said front wall, punch outs formed in said cover tuck and disposed to complement said tabs upon receipt of said tuck behind said front wall, said punch outs being smaller in size than said tabs for lockingly engaging said tab ears as received therethrough, a fold line provided between said cover tuck and said back wall cover flap, and relief cuts provided in said fold line next adjacent said punch outs to facilitate the locking engagement of said tabs through said punch outs.

6. A tamper proof box, comprising; interconnected front, side, and back walls, bottom closure flaps formed from said walls and interlocked together, cover closure flaps connected to said back and side walls, a cover tuck provided on the end of said back wall cover flap, punch out tabs formed within said front wall near the upper edge thereof and spaced from the side edges thereof, said tabs being hinged to said front wall at their lower edges and including upwardly divergent ears, shoulder portions formed on the side edges of said side wall cover flaps next adjacent said front wall, said shoulder portions being disposed for engagement with said front wall between said tabs and the side edges of said front wall, punch outs formed in said cover tuck and disposed to complement said tabs upon receipt of said tuck behind said front wall, said punch outs being smaller in size than said tabs for lockingly engaging said tab ears as received therethrough, a fold line provided between said cover tuck and said back wall cover flap, relief cuts provided in said fold line next adjacent said punch outs, and corner cut outs provided in said side wall cover flaps immediately adjacent said relief cuts and said front wall tabs as said box is closed, for permitting said tabs to be pressed through said punch outs without interference and to be lockingly received therebehind.

7. A tamper proof box, comprising; interconnected front, side, and back walls, bottom closure flaps formed from said walls and interlocked together, cover closure flaps connected to said back and side walls, a cover tuck provided on the end of said back wall cover flap, punch out tabs formed within said front wall near the upper edge thereof and spaced from the side edges thereof, said tabs being hinged to said front wall at their lower edges and including upwardly divergent ears, punch outs formed in said cover tuck and disposed to complement said tabs upon receipt of said tuck behind said front wall, said punch outs being smaller in size than said tabs for lockingly engaging said tab ears as received therethrough, a fold line provided between said cover tuck and said back wall cover flap, relief cuts provided in said fold line next adjacent said punch outs.

8. A tamper proof box, comprising; interconnected front, side, and back walls, bottom closure flaps formed from said walls and interlocked together, cover closure flaps connected to said back and side walls, a cover tuck provided on the end of said back wall cover flap, punch out tabs formed within said front wall near the upper edge thereof and spaced from the side edges thereof, said tabs being hinged to said front wall at their lower edges and including upwardly divergent ears, punch outs formed in said cover tuck and disposed to complement said tabs upon receipt of said tuck behind said front wall, said punch outs being smaller in size than said tabs for lockingly engaging said tab ears as received therethrough, a fold line provided between said cover tuck and said back wall cover flap, relief cuts provided in said fold line

next adjacent said punch outs for facilitating the receipt of said tabs through said punch outs without distortion of said back wall cover closure flap, and corner cut outs provided in said side wall cover flaps immediately adjacent said relief cuts and said front wall tabs, as said box is closed, for permitting said tabs to be pressed through said punch outs without interference and to be lockingly received behind said tuck.

9. A tamper proof box, comprising; interconnected front, side, and back walls, bottom closure flaps formed from said walls and interlocked together, cover closure flaps connected to said back and side walls, a cover tuck provided on the end of said back wall cover flap, punch out tabs formed within said front wall near the upper edge thereof and spaced from the side edges thereof, said tabs being hinged to said front wall at their lower edges and including upwardly divergent ears, shoulder portions formed on the side edges of said side wall cover flaps next adjacent said front wall, said shoulder portions being disposed for engagement with said front wall between said tabs and the side edges of said front wall, said punch outs being smaller in size than said tabs for lockingly engaging said tab ears as received therethrough, and corner cut outs provided in said side wall cover flaps immediately adjacent said relief cuts and said front wall tabs, as said box is closed, for permitting said tabs to be pressed through said punch outs and to be lockingly received therebehind without interference.

10. The combination of a collapsible paper board box including manufacturer's glue joints and having a self-erecting, inwardly folding, and interlocking bottom closure structure, with a tamper proof cover closure which comprises; cover closure flaps formed from the side and back walls of said box, a cover tuck provided on the end

of said back wall cover closure flap and including a fold line between said tuck and back wall flap, hinged punch out tabs formed in the front wall of said box near the cover receiving edge thereof and spaced from the side walls of said box, undersized punch outs formed in said cover tuck and cooperatively disposed to lockingly receive said tabs therethrough when said tuck is disposed next adjacent and behind said front wall, and shoulder portions formed on said side wall cover closure flaps and disposed for engagement with said cover tuck as received in closing position over the opening in said box, said shoulders being received between said punch outs of said cover tuck and said side walls of said box for strengthening said tuck during the interlocking receipt of said tabs through said cover tuck punch outs.

11. A tamper proof box, comprising: interconnected front, side, and back walls, bottom closure flaps forming a bottom, cover closure flaps connected to said back and side walls, a cover tuck provided on the end of said back wall cover flap, punch out tabs formed within said front wall and spaced from the side edges thereof, said tabs being hinged to said front wall at their lower edges and including upwardly divergent ears, punch outs formed in said cover tuck and disposed to complement said tabs upon receipt of said tuck behind said front wall and said punch outs being smaller in size than said tabs for lockingly engaging said tab ears as received therethrough.

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