

Oct. 23, 1951

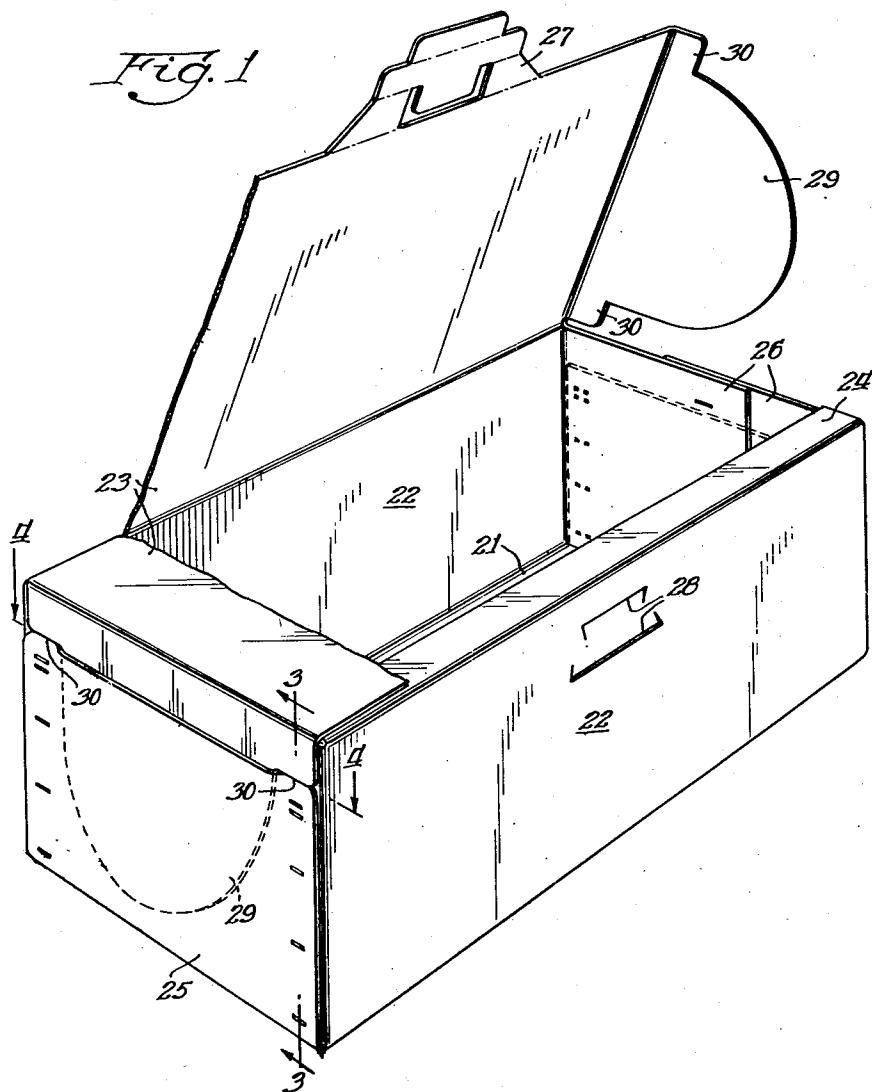
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2,572,159

TUCK END CONTAINER

Filed April 11, 1947

4 Sheets-Sheet 1



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4 Sheets-Sheet 2

Fig. 2

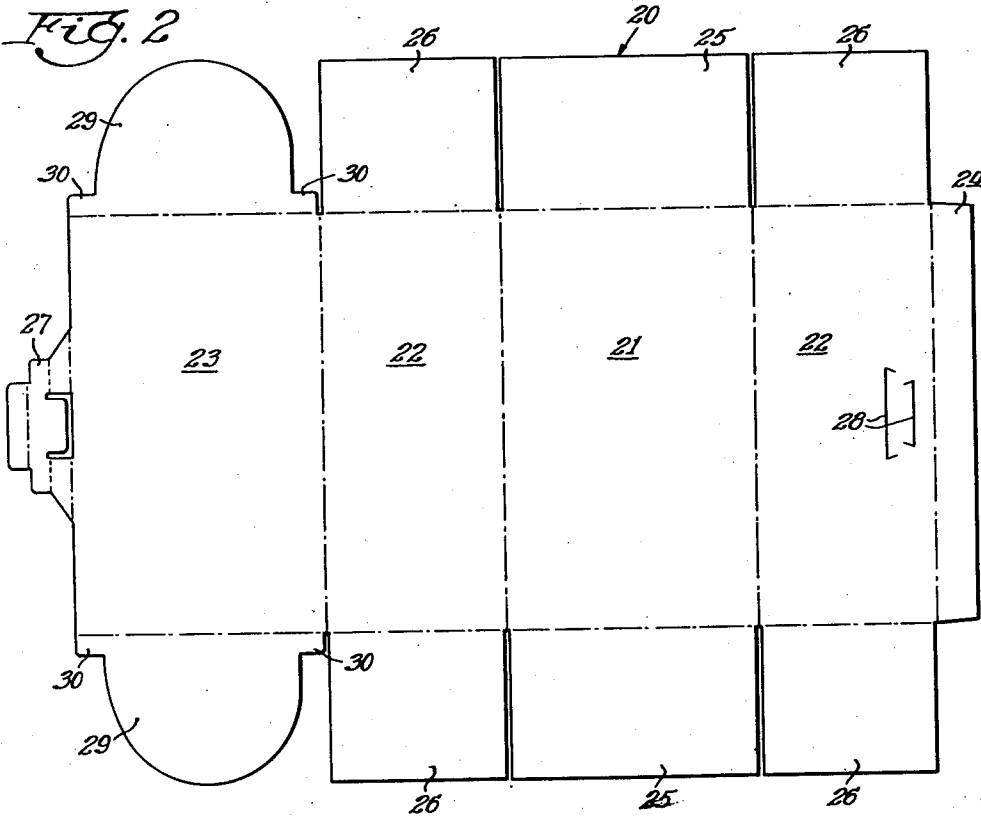


Fig. 3

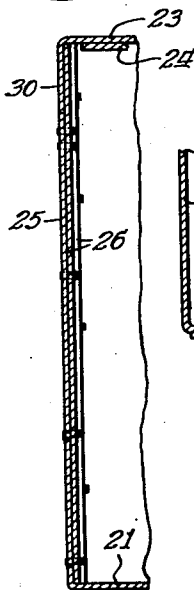
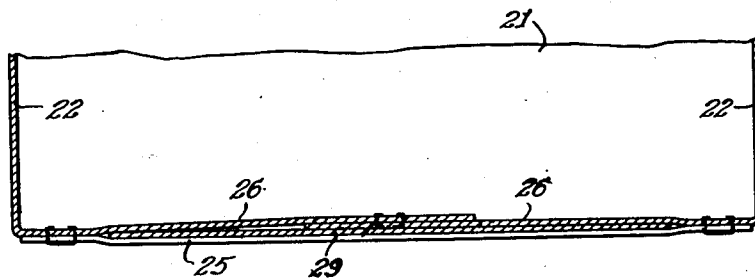


Fig. 4



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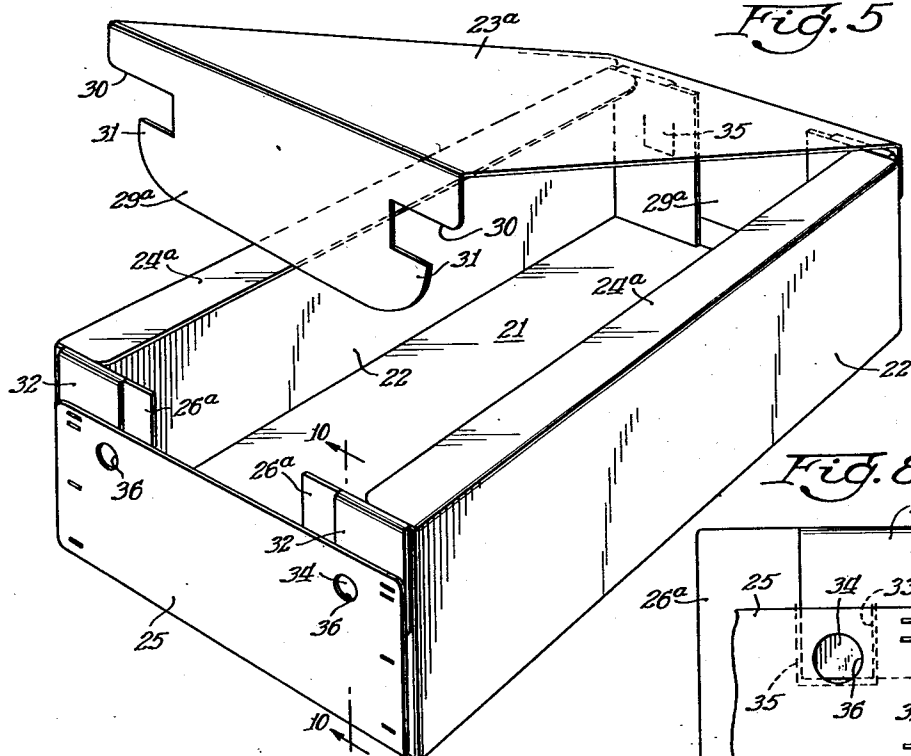


Fig. 5

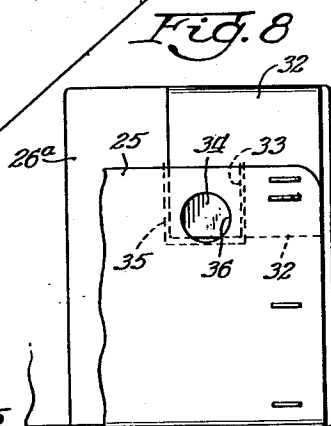


Fig. 8

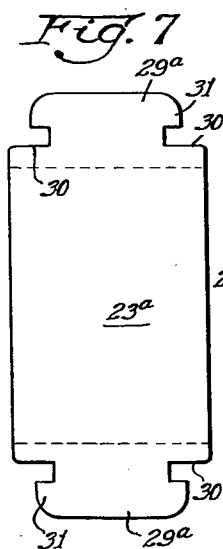


Fig. 7

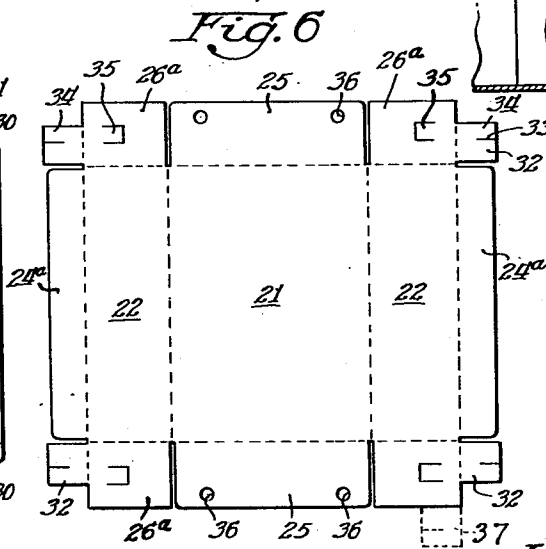


Fig. 6

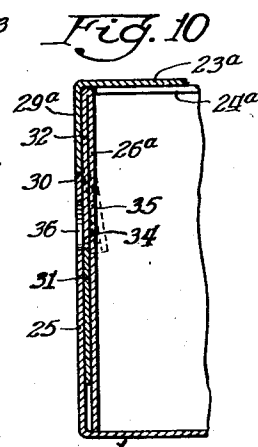


Fig. 10

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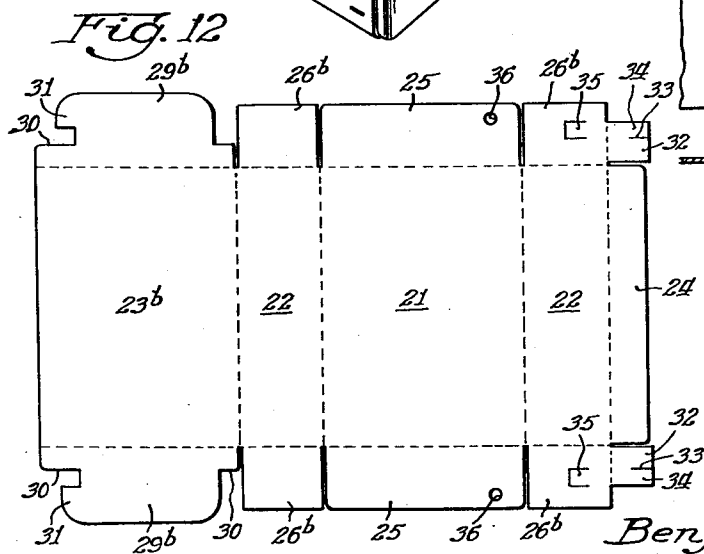
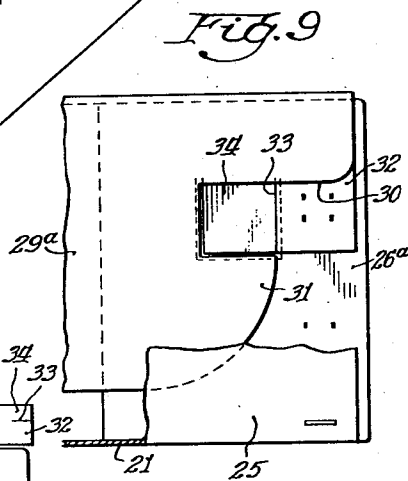
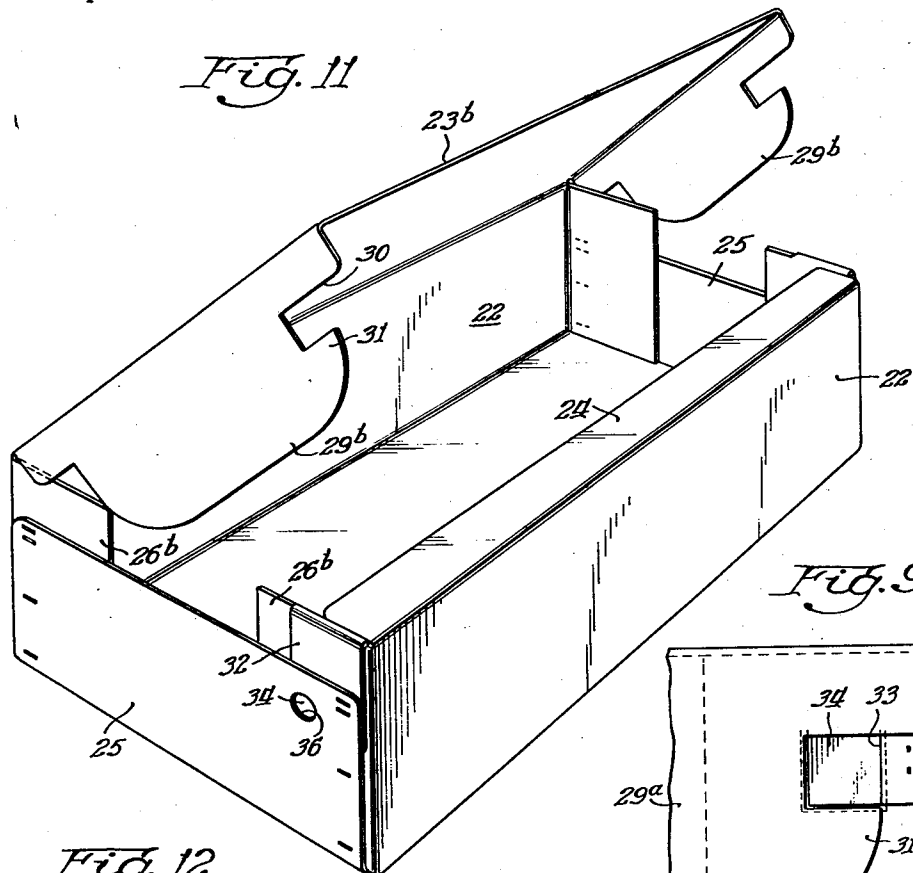
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TUCK END CONTAINER

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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE

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TUCK END CONTAINER

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Application April 11, 1947, Serial No. 740,790

4 Claims. (Cl. 229-45)

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This invention relates to a tuck-end paperboard container with a cover or lid, and more particularly to such a container or box constructed to provide greatly increased stacking strength, and also to provide novel releasable means for locking the cover on the box body.

Briefly, the container is formed with double end walls to provide a pocket at each end into which a tuck flap on the cover is received. One of each of the double end walls is formed lower than the height of the box. The flaps are formed with shoulders which rest on the upper edges of these lower walls, the shoulders being of a height equal to the difference in height of the box and of the lower end walls. In effect, both end walls extend the full height of the box when the cover is in place, thus imparting great stacking strength to the box. The construction permits the ends of the cover to be doubly supported, giving increased rigidity to the cover not only at the ends but at adjacent areas, so that the container affords greater top protection to the contents. Either hinged or separate covers may be used in a box made according to this invention, and in either case any suitable type of locking means may be employed to lock the cover on the box. Preferably, however, the locking means comprises a tab on the cover flap which engages under an abutment provided between the two end walls, movable out of the plane of the tab when the lock is to be released. The cover flaps and box end walls lend themselves perfectly to the formation of such locking means.

It is an object of the invention to provide a paperboard container so constructed as to have great stacking strength.

It is another object to provide a container having end walls of inner and outer end wall elements and a cover with tuck flaps receivable in the end walls, the flaps and end wall elements cooperating to provide a strong stacking construction and to hold the cover locked on the container body.

Still another object is the provision of a container having novel releasable means for locking the cover on the body.

A further object is the provision of a container with a cover in which tuck flaps on the cover cooperate with pocketed end walls to provide multiple end wall structures imparting great strength to the container.

Another object is the provision of a container with a cover in which double end walls in the body cooperate with tuck flaps on the cover ends to provide great resistance to endwise thrust.

Other and further objects and advantages of our

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invention will be apparent to those skilled in the art from the following description and the appended drawings, in which:

Figure 1 is a perspective view of one form of the container of this invention;

Figure 2 is a plan of the blank for the container of Figure 1;

Figure 3 is a vertical sectional view taken substantially in the plane of line 3-3 of Figure 1;

Figure 4 is a horizontal sectional view taken substantially in the plane of line 4-4 of Figure 1;

Figure 5 is a perspective view of another form of the container;

Figure 6 is a plan view of the blank for the body of the container shown in Figure 5;

Figure 7 is a plan view of the blank from which the cover of the container of Figure 5 is formed;

Figure 8 is an enlarged fragmentary view of one corner of the open container of Figure 5;

Figure 9 is a view similar to Figure 8, but showing the cover flap in locking position, and with a part of the outer end wall broken away;

Figure 10 is a vertical sectional view taken substantially in the plane of line 10-10 of Figure 5;

Figure 11 is a perspective view of another form of the container; and

Figure 12 is a plan view of the blank for the container of Figure 11.

Referring first to Figure 2, the blank 20 comprises a sheet of paperboard cut and scored to provide a bottom 21, side walls 22 each hinged to a side of the bottom, a top or cover 23 hinged on one of the side walls, and a support flap 24 hinged on the other side wall. The flap 24 supports the free edge of the cover and aids in retaining contents in the box. Outer end walls 25 are hinged to the ends of the bottom 21, and inner end wall flaps 26 extend from the ends of the side walls 22. A locking tab 27 is provided extending from the cover 23 for engagement with slot means 28 in the side wall opposite that to which the cover is hinged. The tab 27 is shown as comprising two oppositely extending tongues adapted to engage in parallel slots, but it will be clear that any other suitable tongue and slot means might be employed, or that other types of securing means may be used to hold the cover locked on the box body. A tuck flap 29 is provided at each end of the cover 23, which has laterally extending shoulder portions 30 adjacent its line of junction with the cover.

The end wall flaps 26 are of the same height as the side walls 22 from which they extend, and when the blank is folded to form the container as shown in Figure 1, the flaps 26 at the correspond-

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ing ends of the opposite side walls are folded at right angles to the side walls, portions overlapping to a greater or less extent depending upon the particular dimensions of the flaps. The overlapping portions of the end wall flaps 26 are secured together by staples or other appropriate securing means so as to form an inner end wall for the container. The outer end walls 25 are folded upwardly from the bottom 21 on the outside of the inner end walls formed by the end wall flaps 26, and are secured to the inner end walls adjacent the ends of the side walls by staples or other suitable securing means, so that a pocket is provided between the inner end walls formed by the flaps 26 and the outer end walls 25 in which a tuck flap 29 of the cover may be received. The outer end walls have a height less than that of the inner end wall flaps 26 so that the upper edges thereof are spaced below the top of the box. The shoulders 30 of the tuck flaps 29 are of a height equal to the difference in height between the inner and outer end walls. When the cover 23 is closed, the tuck flaps 29 are received between the inner and outer end walls, and the shoulders 30 rest on the upper edges of the outer end walls 25 adjacent the ends of the side walls, and substantially in line with the portions which are secured to the inner wall flaps 26. This is clearly shown at the left hand portion of Figure 1, and also in the sectional views of Figures 3 and 4.

It will be clear that a construction such as that so far illustrated and described provides double strength at the ends of the box, since the inner end walls provided by the flaps 26 are supplemented by the outer end walls 25 and the tuck flaps 29 which together provide in effect a wall of the same height as the inner end wall. Considerable loads may, therefore, be imposed on the top of the box without causing collapse thereof, or in other words, the construction provides a container with very great stacking strength. In addition, the construction provides a very strong end wall structure from the standpoint of resistance to puncture or collapse under endwise thrust, because of the several plies, of which the tuck flap 29 provides one when the box is closed, as will be clear particularly from Figures 1 and 4. As is clearly evident from Figure 3, the ends of the cover are also doubly supported, the inner end wall engaging against the bottom surface of the cover 23 just inside the tuck flap 29, and the shoulders 30 of the tuck flap by their engagement on the top of the outer end wall 25 supporting the extreme end of the cover. This increases the rigidity of the cover not only at its ends but over adjacent areas to an extent determined by the particular material and proportions of the cover.

Obviously the container of Figures 1 to 4 may be modified in various ways without departing from the principle embodied therein. For example, the inner end wall flaps 26 might each be of such extent as to extend entirely across the end of the box and thus provide still greater strength. The cover may be entirely separate from the box instead of being hinged thereon, and any suitable locking means might be employed to secure it against removal. Again, the flaps 26 may, if desired, be so formed as not to meet or overlap, as in the case of the flaps 26a hereinafter described.

In Figures 5 to 10, inclusive, another modified form of the container of this invention is illustrated, in which means are provided on the cover tuck flaps and the end wall elements for releas-

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bly locking the cover on the box. In this construction the cover 23a is separately formed from the box body, and the tuck flaps 29a are provided with laterally extending tab portions 31 at the lower portion thereof. A supporting flap 24a is provided along the upper edge of each of the side walls 22. A locking flap 32 is hinged to the top edge of the inner end wall flaps 26a, and is disposed between the outer end wall 25 and the flap 26a. The locking flap is slit as at 33 to form a locking tab 34, the lower edge of which is so disposed as to engage over the upper edge of the tab 31 of the tuck flap 29a when the cover is in position on the box. A tongue 35 is formed in each end wall flap 26a substantially in registry with the locking tab 34. An aperture 36 is provided in the outer end wall 25 which substantially registers with the tab 34 and tongue 35.

When the tuck flap 29a is moved into the space between the outer end wall 25 and the inner end wall flaps 26a, the tabs 31 are forced between the locking flaps 32 and the outer end wall, until the cover has moved downwardly to its fully closed position, when the upper edges of the tabs 31 will engage or abut against the lower edges of the locking tabs 34. Because of the inherent resilience of the material, the locking flaps 32 and end walls 25 will yield during the passage of the tabs 31 therebetween, and will return to their normal positions when the tabs 31 have passed below the bottom edges of the locking flaps 32. The locking tabs 34 will thus lie in the same planes as the tabs 31 of the cover tuck flaps and prevent upward movement of these tabs, and thereby hold the cover 23a against removal. When it is desired to remove the cover, a finger or suitable implement may be used to push inwardly through the aperture 36 against the locking tab 34 so that this tab together with the tongue 35 in the end wall flap will be moved out of the plane of the tab 31, as shown in dotted lines in Figure 10. The tuck flap 29a may then be raised sufficiently to bring the upper edge of the tab 31 above the edge of the locking tab 34, and the inward pressure on the tab 34 may then be released and the tuck flap withdrawn from between the inner and outer end wall elements.

The inner end wall flaps 26a in the modification just described are shown as of such extent that they do not meet or overlap, and it will be clear that such a construction facilitates the yielding action when the tuck flap 29a is being moved to locked position or when it is being released. It will be obvious, however, that the inner end wall flaps 26a may be so dimensioned as to overlap and to be secured together, as described in connection with the form of container shown in Figure 1. Similarly, the locking flaps 32 may be provided at the ends of the flaps 26a instead of on the top edges thereof, as indicated in dotted lines at 37 in Figure 6. The locking flaps may also be otherwise formed, as by separately cutting them from scrap material and securing them in position by any suitable means. If desired, also, the locking tab 34 alone might be provided instead of forming the locking flap 32 and cutting the slit 33, as described. Instead of forming the yielding tongues 35 in the end wall flaps 26a, an aperture might be provided. Other possible modifications of the specific construction as described may be made, but it is not necessary to the understanding of the invention that all such possibilities be explained here.

In Figures 11 and 12 another modified form of container is illustrated, which is substantially

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similar to that shown in Figures 5 to 10, inclusive, differing therefrom mainly in that the cover 23 is hinged to one of the side walls 22, as in the first-described form of container, and the locking elements 31 of the tuck flaps 29b and 34 of the end wall, together with the associated structure, are provided adjacent the ends of only one of the side walls, that opposite the wall to which the cover is hinged. It will be clear that as the cover 23 is swung downwardly about its hinge connection with its associated side wall, the tuck flaps 29b will move between the inner end wall flaps 26b and the corresponding outer end walls 25, and the tabs 31 will be forced between the locking flaps 32 and the outer wall 25 until the upper edges of the tabs 31 pass below the lower edges of the locking tabs 34, when the latter tabs will spring into the planes of the tabs 31 to lock the cover substantially as explained previously in connection with the form of container illustrated in Figure 5 to 10, inclusive.

No further explanation of the construction of this modified form of the container is necessary, although it will be clear that the construction may be varied as pointed out in connection with the modification of Figure 5.

It will be obvious that various changes and modifications in the structure illustrated and described may be made without departing from the principles of the invention. Some of these possible changes and modifications have been pointed out in the foregoing description, and others will readily suggest themselves to those skilled in the art. In view of the variations which may be made in the structure employed to embody the invention, it is not intended to limit the invention to the specific embodiment illustrated and described, but only as required by the spirit and scope of the appended claims.

We claim:

1. A paperboard container comprising bottom, side, and end walls, each of said end walls having an inner wall structure and an outer wall portion defining a pocket, said outer wall portion having a height less than that of the side walls, a cover panel hinged to one of said side walls, a tuck flap on each end of said cover panel having shoulders abutting on the top of said outer wall portion when said flap is disposed in said pocket, said shoulders having a height equal to the height difference between said side walls and outer wall portions, and locking means for said cover comprising a flexible sheet disposed between said inner end wall structure and outer end wall portion adjacent the side wall opposite that to which said cover panel is hinged, said sheet having its lower edge spaced above said bottom wall, and a lateral projection at the lower portion of said tuck flap having an upper edge engageable with the lower edge of said sheet.

2. A paperboard container as defined in claim 1 in which said inner wall structure is formed with a cut out portion, and said outer wall portion is provided with an aperture, said aperture and cut out portion being substantially in alignment with each other and the lower part of said sheet, whereby said lower part may be moved inwardly of said container for disengaging said edges.

3. A paper board container comprising a bottom, side walls having an inner end wall flap at each end of equal height therewith, outer end

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walls of less height than said inner end flaps, means securing said outer end walls to said inner end flaps at portions adjacent the ends of said side walls, a cover, tuck flaps hinged to the ends of said cover having laterally extending shoulder portions adjacent said cover ends of a height substantially equal to the height difference between said inner end flaps and outer end walls to engage throughout substantially their entire length on the upper edges of said outer end walls to increase correspondingly the resistance of the container to force tending to crush it, whereby said cover is supported at its end portions by both said inner end flaps and outer end walls upon disposition of said tuck flaps between said end flaps and walls, spacing flaps disposed between said inner end flaps and outer end walls each including a flexible tongue having a lower edge providing a locking abutment spaced above said bottom, and lateral projections on said tuck flaps each having an upper edge providing an abutment engageable against the locking abutment of an adjacent tongue.

4. A paper board container comprising a bottom, side walls having an inner end wall flap at each end of equal height therewith, outer end walls of less height than said inner end flaps, means securing said outer end walls to said inner end flaps at portions adjacent the ends of said side walls, a cover, tuck flaps hinged to the ends of said cover having laterally extending shoulder portions adjacent said cover ends of a height substantially equal to the height difference between said inner end flaps and outer end walls to engage throughout substantially their entire length on the upper edges of said outer end walls to increase correspondingly the resistance of the container to force tending to crush it, whereby said cover is supported at its end portions by both said inner end flaps and outer end walls upon disposition of said tuck flaps between said end flaps and walls, spacing flaps disposed between said inner end flaps and outer end walls each including a flexible tongue having a lower edge providing a locking abutment spaced above said bottom, and lateral projections on said tuck flaps each having an upper edge providing an abutment engageable against the locking abutment of an adjacent tongue, said inner end flaps each having a cut out portion registering with said tongue.

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