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E. O. TINSLEY

DOUBLE CORNER AND LOCK FOR CONTAINERS

Filed Nov. 20, 1924

Fig. 1.

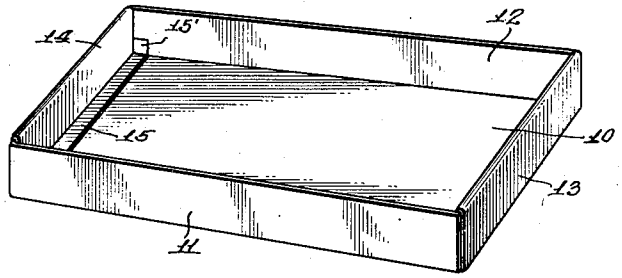


Fig. 2.

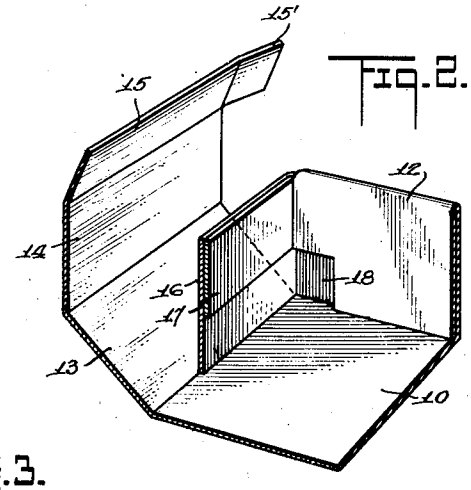
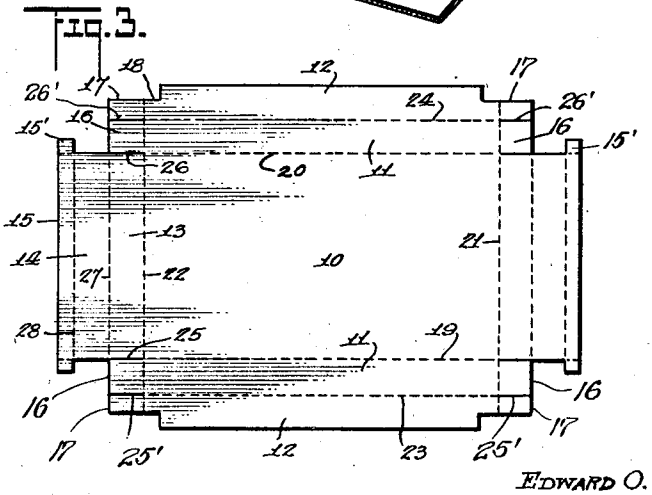


Fig. 3.



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UNITED STATES PATENT OFFICE.

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DOUBLE CORNER AND LOCK FOR CONTAINERS.

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The present invention relates to containers or boxes formed by folding suitable material such as cardboard, and has for its principal object the provision of side and end corner locks for retaining the container in operative folded form and reinforcing the container at its ends.

I attain this object and such other objects as may later appear in the subjoined specification descriptive by way of example of one embodiment of the invention and illustrated in the accompanying drawings in which Fig. 1, is a perspective view of the container in operative folded form.

Fig. 2 is a fragmental end view of the container in partly folded form.

Fig. 3 is a view in extended position of the blank from which the container is formed by folding the blank.

The container comprises a bottom 10, outer side walls 11, inner side walls 12, outer end walls 13, inner end walls 14, binding and locking strips 15 on the inner end walls, and outer and inner free-hanging end closure tabs 16 and 17 on the outer and inner side walls respectively.

The outer side walls 11 are foldably connected to the bottom 10 along the sides of the bottom. The inner side walls 12 are foldably connected to the outer side walls along one of their sides. The outer end walls 13 are foldably connected to the bottom 10 along one of their sides. The inner end walls 14 are foldably connected to the outer end walls along one of their sides. The binding and locking strips 15 in length extend as shown at 15′ somewhat beyond the line of the ends of the inner end walls 14 for the purpose later stated and are relatively narrow in width and are foldably connected along one of their sides to the inner end walls 14. The outer free hanging end closure tabs 16 in length are sufficient to cooperate with the outer and inner end walls for closing the container at its sides and ends, and in width are slightly less than the width of the outer and inner end walls to permit the outer end closure tabs to be moved freely inwardly at right angles to the side walls of the container without binding at their lower edges on the bottom 10, the outer end closure tabs being foldably connected at one of their ends to the outer side walls 11. The inner free hanging end closure tabs 17 in length are the same as the outer end closure tabs 16, but their width is less than the outer end closure tabs for the purpose later stated, and they are foldably connected at one of their ends to the inner side walls 12.

The inner side walls 12, as shown in Figs. 1 and 2, at each of their ends at their lower edges are provided with the recesses 18, these recesses being rectangular to receive in close conforming engagement therein the ends 15′ of the binding and locking strips 15. The inner end closure tabs 17 are less in width than the outer tabs 16, their lower edges being in line with the tops of the recesses 18 for thereby permitting engagement of the ends 15′ therein and permitting bearing of the ends 15′ at one side against the inner surfaces of the outer end closure tabs 16 at the ends of the tabs, as seen in Fig. 2.

In assembling the container the inner side walls 12 are folded on their lines of connection to the outer side walls 11 and brought at their lower edges into contact with the bottom 10, the outer and inner end closure tabs 16 and 17 are folded on their lines of connection to the outer and inner side walls and swung inwardly at right angles to the outer and inner side walls, the inner end walls are folded on their lines of connection to the outer end walls 13 and carried over the upper edges of the outer and inner end closure tabs, the binding and locking strips 15 are folded inwardly on their lines of connection to the inner end walls 14 and at right angles to these walls and the main portions of the strips are pressed down into close engagement with the bottom 10, the lock ends 15′ being bent upwardly at right angles to the main portions of the strips and pressed into the recesses 18 and securely anchored therein, the outer end walls 13, outer and inner end closure tabs 16 and 17 and inner end walls 15 thus being brought into close relation and retained therein by the engagement of the main portions of the strips 15 with the bottom 10 and engagement of the lock ends 15′ in the recesses 18, efficient side and end corner locks for the container being provided and the container being provided at its ends with four thicknesses of the material for reinforcing the container.

In practice the outer and inner side walls 11 and 12 preferably are suitably secured

together, as by pasting, for their full lengths and widths for providing greater stiffness for the container at its sides.

A similarly formed container may be used as a cover for the first container.

The blank from which the container is formed by folding the blank on the scorings and cuts thereof comprises a substantially rectangular, preferably oblong, body portion having short extensions at its ends. The body portion comprises the bottom section 10, the outer side wall sections 11, inner side wall sections 12, outer end wall sections 13, outer end closure tabs 16, and inner end closure tabs 17. The extensions of the body portion comprise the inner end walls 14, and the binding and locking strips 15 having the lock ends 15′.

The bottom section 10 is the desired length and width of the container, and is defined by the parallel longitudinal scorings 19 and 20 and the parallel transverse scorings 21 and 22. The outer side wall sections 11 in length are the same as the bottom section 10 and in width are the desired depth of the container and are defined from the bottom section 10 by the scorings 19 and 20 and from the inner side wall sections 12 by the scorings 23 and 24 and are defined from the outer end closure tabs 16 by extensions of the scorings 21 and 22. The inner side wall sections 12 in length are the same as the outer side wall sections 11 and in width are the same as these sections for the greater portion of their lengths, are free on their outer sides and are defined from the inner end closure tabs 17 by extensions of the scorings 21 and 22. The inner side wall sections 12 are provided at the ends of their free sides with the notches or recesses 18, these recesses in width or depth being substantially equal to the width of the lock ends 15′ of the binding and locking strips 15. The outer end closure tab sections 16 in width are the same as the outer side wall sections 11, and their lengths are substantially the same as their widths, but they are not necessarily restricted to substantially equal lengths and widths, because if desirable their lengths may be increased any amount provided their lengths are not more than one-half the width of bottom section 10. The outer end closure tab sections 16 are defined from the outer end wall sections 13 by the cuts 25 and 26 which are in the line of the scorings 19 and 20, and are defined from the inner end closure tabs 17 by cuts 25′ and 26′ which are in the line of the scorings 23 and 24, the cuts 25′ and 26′ rendering the outer and inner end closure tabs independently free-hanging and facilitating movement thereof to positions for closing the container at its ends. The inner end-closure tabs 17 in length are the same as the outer end-closure tabs 16 and their width is the width of the inner side wall sections 12 less the depth of the notches or recesses 18, the outer edge of the inner end-closure tabs being in alinement with or in extension of one of the sides of the recesses, the intention being that when the outer and inner end-closure tabs are folded inwardly, as shown in Fig. 2, exposed portions of the inner faces of the outer end-closure tabs will provide one of the sides of the recesses 18, while the exposed inner faces of the outer side wall sections 11 provide the bottoms of these recesses, the recesses thus being in depth the thickness of the material of which the outer side wall sections are formed, and in shape adapted to receive tensionally and anchor the lock ends 15′ therein. The outer end wall sections 13 in length are the width of the bottom section 10 and in width are the same as the outer side wall sections, are defined from the inner end wall sections 14 by the scorings 27, and are defined from the outer end-closure tabs 16 by the cuts 25 and 26. The inner end wall sections 14 in length and width are the same as the outer end wall sections, are defined from the binding and locking strip sections 15 by the scorings 28 and are free at their ends. The binding and locking strip sections 15 are somewhat longer than the inner end wall sections 14 and in width are substantially the length of the bottom sides of the recesses 18, the intention being that when the extended or lock ends 15′ are bent at right angles to the strips in the lines of the edges of the free ends of the inner end wall sections 14 the ends 15′ will be tensionally engageable in the recesses 18.

Having thus described my invention, it should be understood that there may be modifications thereof and variations therein without departing from the spirit of the invention or exceeding the scope of the appended claims.

What I claim and desire to protect by Letters Patent is:

1. A container comprising, a bottom; outer side and end walls connected to the bottom; inner side walls connected to the outer side walls and provided with inner closure tabs each connected thereto by a corner fold; the lower portion of each closure tab and the adjacent portion of the inner wall being cut away to form a rectangular side recess in the inner wall and extending under said corner fold and an end space joining said recess and extending under the inner closure tab to the end thereof, each side recess having a substantially vertical inner edge; inner end walls joining the outer end walls, each carrying a locking strip lying against the bottom and provided with upturned locking ends disposed in said side recesses and projecting into said end spaces.

2. A container comprising, a bottom; out-

er side and end walls connected to the bottom; inner side walls each lying against the inner face of, and connected to the top edge of, an outer side wall and provided with inner closure tabs connected to the inner side wall by a corner fold and forming intermediate pieces parallel to the adjacent end wall; the lower portion of each inner closure tab and the lower portion of the adjacent end of the inner wall being cut away to form a rectangular side recess in the inner wall and extending under said corner fold and an end space joining said recess and extending to the end of the inner closure tab; inner end walls each joining the top edge of the adjacent outer end wall and extending to said bottom where it foldably carries a locking strip lying flat against the bottom and provided with upturned locking ends filling said side recesses and projecting into said end space and engaging the side edge faces of said inner end walls whereby the end wall holds the upper part of the locking end in the side recess; said locking ends engaging under said corner folds, whereby the inner end wall is held against upward movement, substantially without tendency to rotate said locking strip and locking ends on the lower edge of the inner end wall as an axis.

3. A container comprising, a bottom; outer side and end walls connected to the bottom; inner side walls each lying against the inner face of, and connected to the top edge of, an outer side wall and provided with inner closure tabs connected to the inner side wall by a corner fold and forming intermediate pieces lying parallel to the adjacent end wall; the lower portion of each inner closure tab and the lower portion of the adjacent end of the inner wall being cut away to form a rectangular side recess in the inner wall and extending under said corner fold and an end space joining said recess and extending to the end of the inner closure tab, said side recesses each having a substantially vertical inner edge, the top edge of said recess and space extending parallel to said bottom; inner end walls each joining the top edge of, and lying parallel to, the adjacent outer end wall and extending to said bottom where it foldably carries a locking strip lying flat against the bottom and provided with upturned locking ends filling, and horizonally fully as wide as said side recesses and engaging said vertical edge and forcing the lower edge of the inner end wall back into said space, whereby said locking ends engage the rear part of side edge face of said inner end walls at said horizontal edge, whereby the end wall holds the upper part of the locking end in the side recess, and said upturned locking ends thrust directly upwardly directly under and against the lower end of said corner fold substantially in line with the side edge of the inner end wall, whereby said end wall is held against upward movement, substantially without tendency to rotate said locking strip and locking ends on the lower edge of the inner end wall as an axis.

4. A container comprising, a bottom; outer side and end walls connected to the bottom; outer free end closure tabs foldably connected to the ends of the side walls and disposed against the end walls; inner side walls each lying against the inner face of, and connected to the top edge of, an outer side wall and provided with inner closure tabs connected to the inner side wall by a corner fold and forming intermediate pieces lying against the adjacent end closure tab; said inner closure tabs being entirely free of direct connection with the outer closure tabs, thereby to prevent puckering when adjacent tabs are bent at right angles at said line of fold; the lower portion of each inner closure tab and the lower portion of the adjacent end of the inner wall being cut away to form a rectangular side recess in the inner wall and extending under said corner fold and an end space joining said recess and extending to the end of the inner closure tab, the top edge of said recess and space extending parallel to said bottom; inner end walls each joining the top edge of, and lying parallel to, the adjacent outer end wall and extending to said bottom where it foldably carries a locking strip lying flat against the bottom and provided with upturned locking ends filling said side recesses and projecting into said space against said outer closure tab.

5. A blank comprising a rectangular bottom section, outer side and end wall sections of the same width connected by a score line to the bottom section; outer free closure tabs foldably connected to the ends of the side wall sections; inner side-wall sections foldably connected to the free edge of, and about the same width as, the side wall sections and provided with inner end tab foldably connected thereto and entirely free of connection with said outer closure tabs; the outer lateral portion of each inner closure tabs and the adjacent portion of the adjacent end of the inner wall section being cut away to form a rectangular side recess extending to the end of the inner wall section and having an inner edge transverse to the inner wall section, and a space joining said recess and extending to the end of the inner closure tab, the alined edges of said recess and space being parallel to the length of said side sections; inner end wall sections joining the outer edge of, and about the same width as the adjacent outer end wall section and carrying at its outer edge a locking strip the same length as the end wall section and provided with rectangular locking ends approximately the same size and shape as said side

recess foldably joined thereto each having its end edge fully as long as said alined edge of said recess.

6. A blank comprising a rectangular bottom section, outer side and end wall sections of the same width connected by a score line to the bottom section; outer free closure tabs foldably connected to the ends of the side wall sections; inner side-wall sections foldably joining the outer side edges of the outer side wall sections; inner side-wall sections foldably connected to the free edge of, and about the same width as, the side wall sections and provided with inner closure end tab foldably connected thereto and entirely free of connection with said outer closure tabs; the outer lateral portion of each inner closure tab and the adjacent portion of the adjacent end of the inner wall section being cut away to form a rectangular side recess extending to the end of the inner wall section and having an inner edge transverse to the inner wall section, and a space joining said recess and extending to the end of the inner closure tab, the alined edges of said recess and space being parallel to the length of said side sections; inner end wall sections joining the outer edge of, and about the same width as the adjacent outer end wall section and carrying at its outer edge a locking strip the same length as the end wall section and provided with rectangular locking ends the same size and shape as said side recesses and foldably joined thereto each having its end edge as long as said alined edge of said side recess.

Signed at New York, in the county of New York and State of New York, this 29th day of October, A. D. 1924.

EDWARD O. TINSLEY.