April 9, 1946. W. P. FRANKENSTEIN 2,397,934

CARTON

Filed July 21, 1941 3 Sheets-Sheet 1

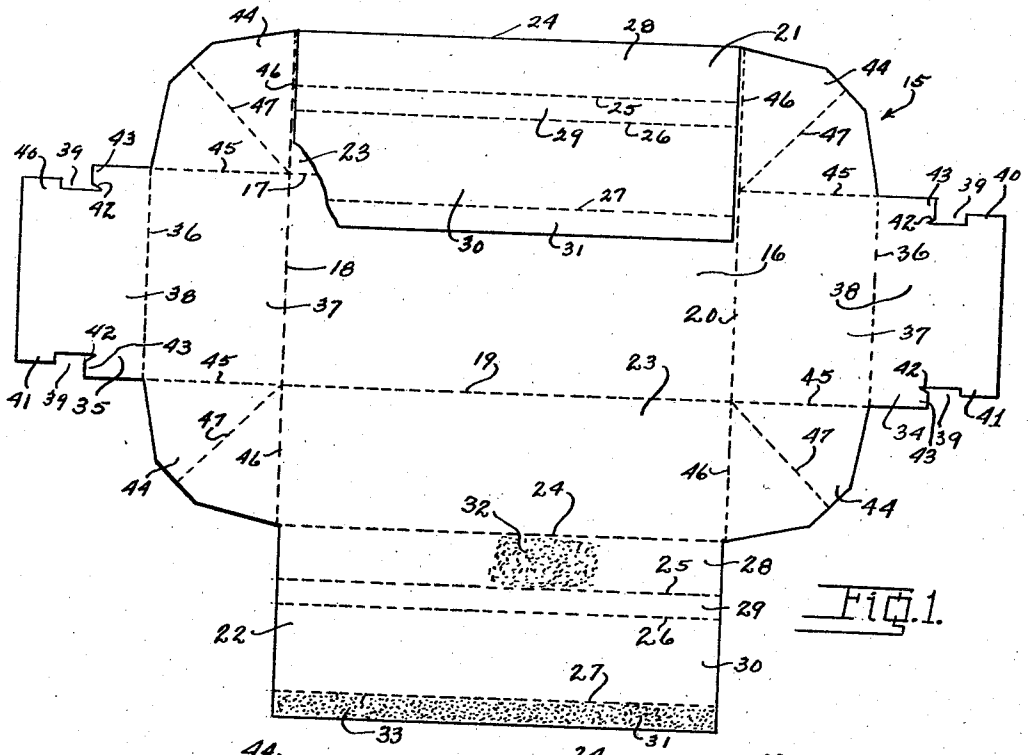

Fig. 1.

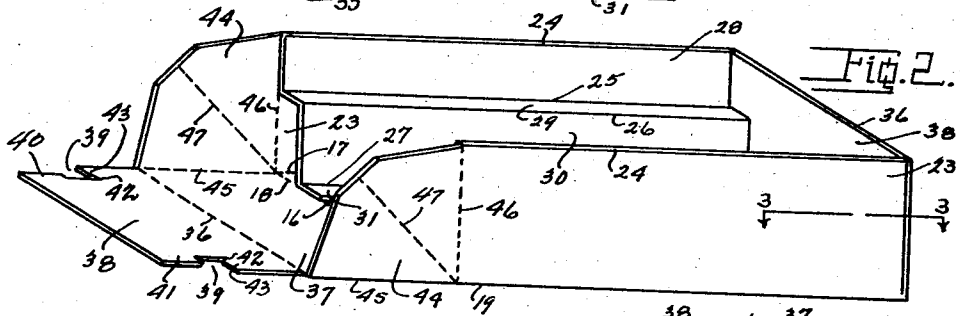

Fig. 2.

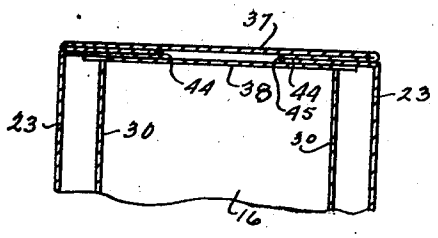

Fig. 3.

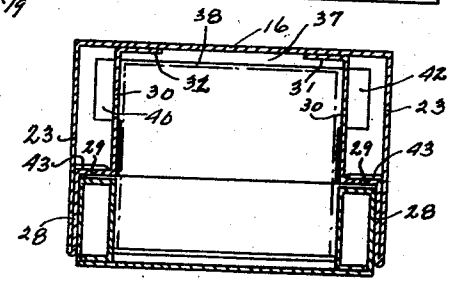

Fig. 4.

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CARTON

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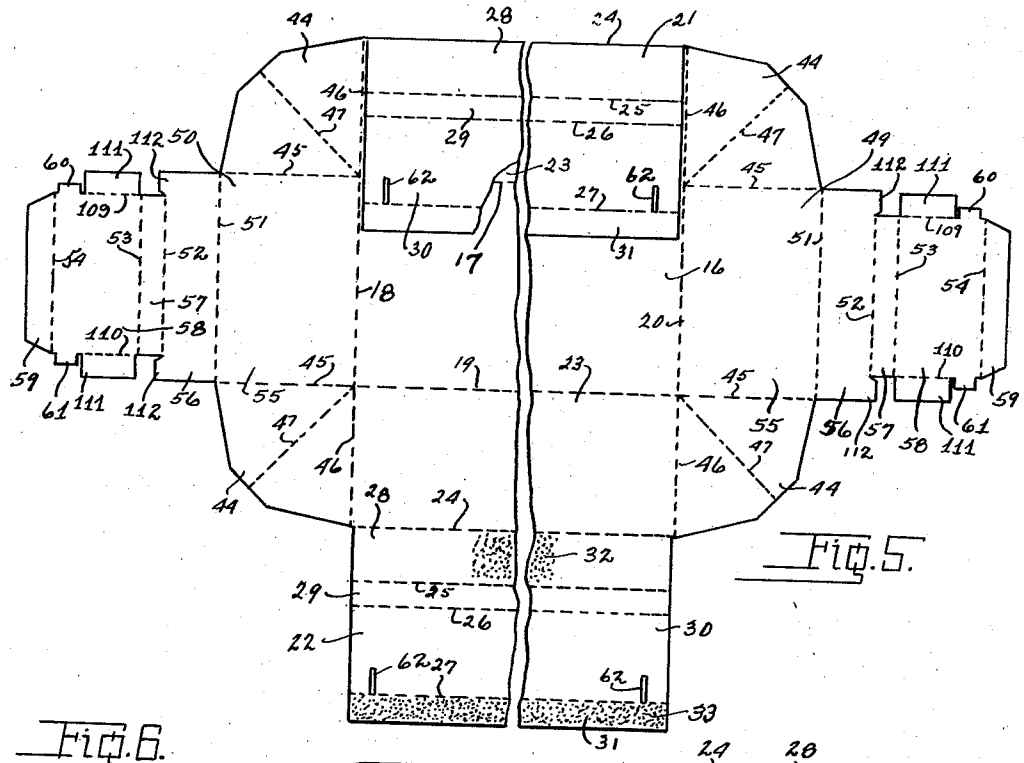

Fig. 5.

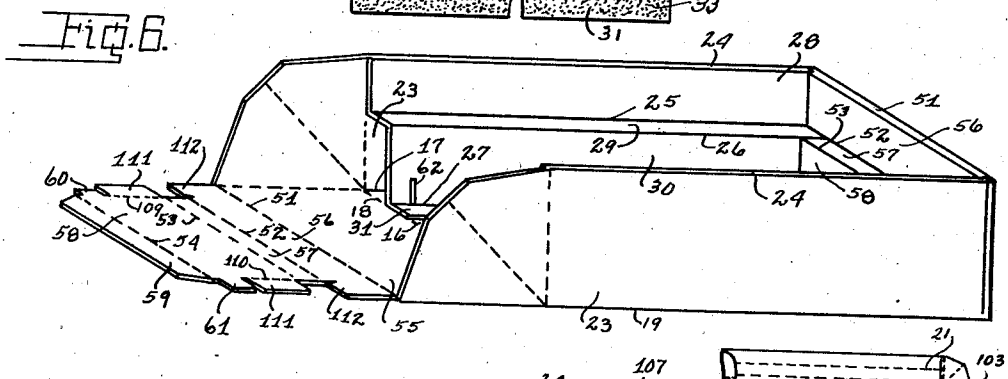

Fig. 6.

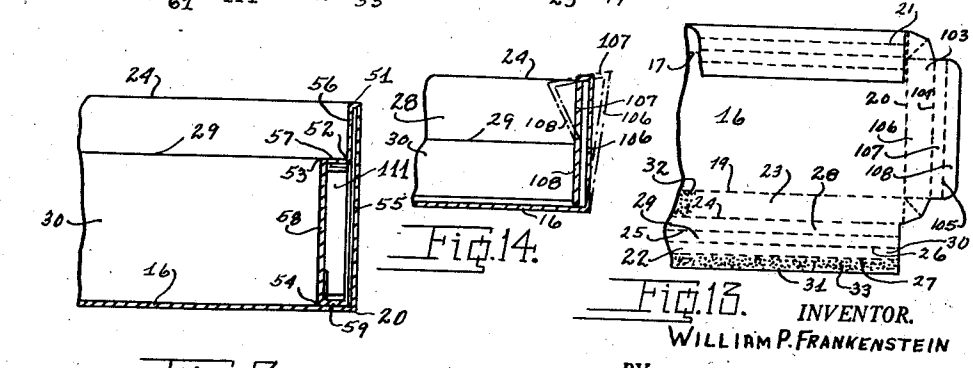

Fig. 14.

Fig. 16.

Fig. 7.

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CARTON

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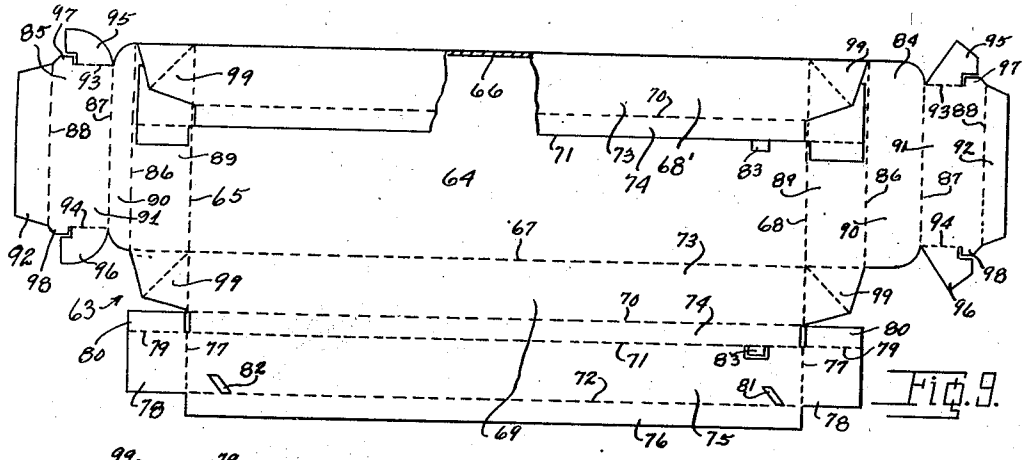

Fig. 9.

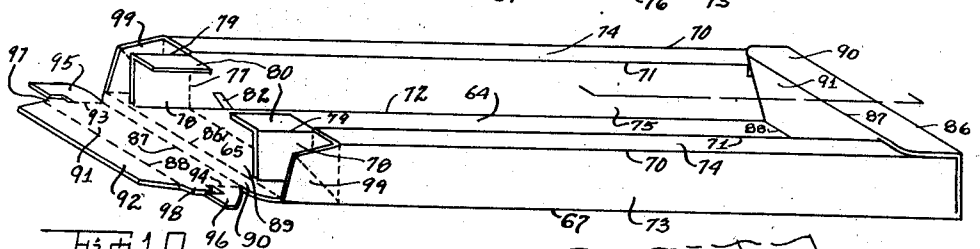

Fig. 10.

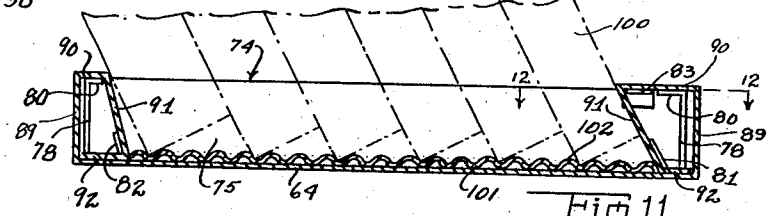

Fig. 11.

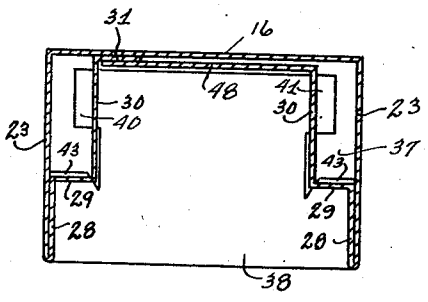

Fig. 8.

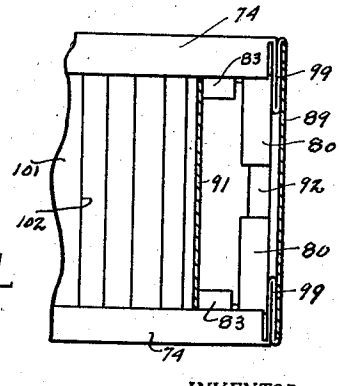

Fig. 12.

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UNITED STATES PATENT OFFICE

2,397,934

CARTON

William P. Frankenstein, Cincinnati, Ohio

Application July 21, 1941, Serial No. 403,376

5 Claims. (Cl. 229—34)

This invention relates to improvements in cartons of the folding type and referred to in the trade as of a "knocked down" construction from which the cartons are assembled for use.

In the past there has been provided hollow wall cartons such as disclosed in applicant's Reissue Patent No. 21,158 dated July 25, 1939, and on which construction the present application is an improvement. As will be readily appreciated from the above patent hollow wall cartons or boxes provide safeguards and advantages not possible with the ordinary carton, even though said cartons are provided with double thickness walls. It is frequently desirable to provide a carton or box which is relatively shallow compared with the articles packed therein, wherefore, said articles extend above the carton walls and the carton and the articles therein are to be covered by a cover which will enclose the carton as well as the articles. In this case it is necessary that the cover extend materially above the carton to enclose the articles above the carton and at the same time provide the cover with sufficient strength that it will not be crushed and forced into contact with the enclosed articles.

It is, therefore, one of the principal objects of this invention to provide a cover for hollow wall cartons wherein the cover is considerably deeper than the carton and wherein means are provided for limiting the relative movement of the cover to the carton.

Another object of this invention is to provide an internally shouldered cover for a carton or box.

A further object of this invention is to provide, as a unit, a hollow wall carton and a hollow wall cover of different depths but adapted to telescope one with the other and with the hollow walls of said carton and cover extending from one another whereby the articles within the carton and cover are encircled by hollow walls.

It is also an object of this invention to provide, as a unit, a carton and cover wherein hollow walls extend along two opposite sides or ends thereof instead of around all the four sides as pointed out in the preceding paragraph.

It is a still further object of this invention to provide in a hollow wall carton means whereby articles may be set at angle to the outside wall line of the carton and with the inside wall line inclined whereby the over all length of the carton and it blank is held to a practical minimum.

Other objects and advantages of the present invention should be readily apparent by reference to the following specification considered in conjunction with the accompanying drawings forming a part thereof and it is to be understood that any modification may be made in the exact structural details there shown and described, within the scope of the appended claims, without departing from or exceeding the spirit of the invention.

In the drawings:

Fig. 1 is a plan view of an extended blank, partly folded, utilized in making a shouldered cover with the shoulders extending along the long sides of the cover.

Fig. 2 is a perspective view of a partly assembled cover formed from the blank of Fig. 1.

Fig. 3 is a fragmentary horizontal sectional view through one end of the assembled cover taken on lines 3—3 on Fig. 2.

Fig. 4 is a vertical transverse sectional view through the shouldered cover of Fig. 2 and shown in operative position on a hollow wall carton.

Fig. 5 is an extended plan view of a modified blank, partly folded over, utilized in making a shouldered cover wherein the shoulders extend along the inner surfaces of each side or wall of the cover.

Fig. 6 is a view similar to Fig. 2 showing a shouldered cover partly assembled from the blank of Fig. 5.

Fig. 7 is a vertical sectional view through the assembled end or short side of the cover of Fig. 6.

Fig. 8 is a transverse sectional view similar to Fig. 4, without the carton, illustrating a slight modification in the blank.

Fig. 9 is an extended plan view of a blank, partly folded over or assembled, utilized in the assembling of a carton having hollow walls entirely surrounding the carton and with the inner members of the end walls inclined.

Fig. 10 is a perspective view of a carton partly assembled from the blank of Fig. 9.

Fig. 11 is a longitudinal sectional view through an assembled carton made from the blank of Fig. 9 and showing articles in position.

Fig. 12 is a view, partly in elevation and partly in section, as seen from line 12—12 on Fig. 11.

Fig. 13 is an extended plan view of a portion of a blank for forming the end wall of a shouldered carton part.

Fig. 14 is a sectional view of the assembled end wall formed from the blank portion of Fig. 13.

Throughout the several views of the drawings similar reference characters are employed to denote the same or similar parts.

As was noted above this invention pertains to improvements in "knocked down" or foldable

carton and particularly to such carton when provided with one or more hollow walls. By hollow walls is meant, walls having an inner member and an outer member spaced from one another by a spacer integral with one of the wall members and integral or permanently connected with the other wall member such as disclosed in applicant's Reissue Patent No. 21,158, supra. The objects set forth that these improvements are directed primarily to a cover for a carton, it will be understood, however that the cover could actually be the carton itself and what is generally, hereinafter, referred to as the carton could be the cover, and said carton and cover be telescopically assembled as illustrated in the drawings and hereinafter described. It should also be noted that reference will, hereinafter, be made to carton and cover sides and ends but it will be understood that these terms are used for clearness and not by way of limitation since by the term side is generally meant the longer wall of a box or carton while by the term end is generally meant the shorter side or wall.

Specifically, referring to the drawings, the blank 15, illustrated in Fig. 1, comprises a central panel 16, which in the cover would form the top and in the carton proper would form the bottom or base. The panel 16 is bounded by crease or fold lines indicated in the drawings by dash lines 17, 18, 19 and 20. In the form illustrated the lines 17 and 19 would normally be referred to as sides from which respectively project extensions 21 and 22 foldable to form side walls and since these parts are identical in all respects it is deemed sufficient if but one of them be described in detail, for example extension 22.

Accordingly, extension 22 comprises a portion 23 between fold line 19 and a fold line 24, which latter constitutes the top of the assembled carton wall. The extension 22 beyond the fold line 24 is provided with parallel fold lines 25, 26 and 27 which respectively divide the extension into portions 28, 29, 30 and 31. The portion 28 is provided, preferably for a portion at its mid-section, with adhesive 32 while the portion 31 is preferably provided throughout its length with adhesive 33.

The blank 15 would have the lines 18 and 19 normally considered as the ends of the panel 16 from which projects extensions 34 and 35 which are identical in construction and a description of one of them is considered sufficient for the other.

Accordingly end extension 34 is divided by a crease or fold line 36 for providing portions 37 and 38. The portion 38 has its sides notched as at 39 providing ahead of it a portion of less width than the main body thereof and having, in effect, end tabs 40 and 41. The base of the notches 39 is extended into the portion 38 in the form of a V cut 42 thereby, in effect, providing lugs 43 at the inner ends of the notches 39.

Between each of the side extensions 21 and 22 and its adjacent end extensions 34 and 35 are corner pieces, each identical in construction and indicated by the reference character 44. The corner pieces are separated from their respective end extensions and side extensions but crease or fold lines 45 and 46 respectively extending from the side extension fold lines and the end extension fold lines. The corner pieces 44 are further each provided with a diagonal crease or fold line 47.

The blank 15 is formed or cut from card or paper board material in one piece with each side extension 21 and 22 extended as side extension 22 is illustrated and with the fold or crease lines, above specifically set forth, formed at the time of cutting the blank. Adhesive 32 and 33 is then applied to side extension portions 28 and 31 whereupon the portions or said side extensions beyond the crease or fold lines 24 are folded to the position shown by side extension 21 thereby securing side extensions portions 28 to side extension portions 23; and simultaneously securing side extensions portions 41 to the panel 16 at points illustrated by side extension 21. The blank is now in the position for shipment to the customer for use by him.

In order to assemble the carton part the side walls are raised from the flat position of portion 21 of Fig. 1 to the upright position illustrated in Fig. 2. As will be seen from Fig. 2 this causes side extension portions 23 to lie normal to the sides of the panel 16 with the portions 28 secured thereto and depending from the upper ends thereof. The portions 29 bend normal along the crease or fold line 25 to lie parallel with the panel 16 with the portion 30 disposed normal to the portions 29 and the panel 16 and parallel with the portion 23. Since the side extension portion 31 was secured to the panel 16 it will be parallel with said panel and normal to the side portion 30. With the sides in their erected positions there is provided a shoulder between the panel 16 and the top of the side portion 23 formed by the side portions 29. It will be appreciated that this shoulder may be formed at any point between the panel 16 and the top of the side depending entirely on the position of bend or fold lines 25 and 26. Also the width of the shoulder may be varied depending upon the spacing of said fold lines 25 and 26 from one another.

The end portions 34 and 35 are now assembled to complete the carton which is effected as follows:

Corner portions 44 are folded inwardly along fold lines 46 and 45 causing each of them to fold on itself along diagonal fold line 47. This operation causes the end extensions to fold normal to panel on fold lines 18 and 20. It should be noted that this type of a corner is known as a bellows corner and is not new with applicant except in combination with other parts of the blank. The end extensions' portion 37 is now vertical or normal to the panel 16 and the portion 38 is now folded along the fold line 36 into the interior of the carton to lie adjacent the inner face of the portion 37. This end extension portion 38 locks the side folds in their operative position as well as locks the end wall in its operative position by causing the lugs or tabs 40 and 41 to engage behind the adjacent ends of inner side wall portions 30 and at the same time the tabs or lugs 43 engage behind the adjacent ends of the shoulder or side wall portions 29 as clearly illustrated in Fig. 4.

Instead of having the side extensions 21 and 22 each terminating in gluing flaps 31 and secured to the panel 16 only one of said side extension need have this flap and the other extension may then be extended to engage with said gluing flap and these parts secured to one another with no permanent connection to the panel 16.

Such a construction is illustrated in Fig. 8 wherein gluing flap 31 of side extension 21, for example, has connected with it the end of a side extension portion 48, which takes the place of flap 31, and extends from the side extensions portion 30 across the space between the inner wall members.

The foregoing description deals with a construction wherein the shoulders are along the side walls only of the carton while in Figs. 5 to 7 inclusive there is illustrated a modification of the blank and assembled carton wherein the shoulder is formed along all four sides. This modified blank of Fig. 5 is substantially identical with that illustrated in Fig. 1 except for the end wall extensions 49 and 50. Since end wall extensions 49 and 50 are identical in construction but one of them will be described in detail. Accordingly, end wall extension 49 is provided with parallel crease or fold lines 51, 52, 53 and 54 forming end wall extension portions 55, 56, 57, 58 and 59. As will be noted portions 57, 58 and 59 are narrower than portions 56 and 55. Projecting from opposite sides of the portion 58 and substantially adjacent its outer end are tabs or lugs 60 and 61. The portion 58 is laterally defined, substantially throughout its length, by fold lines 109 and 110 which respectively hingedly attach to the portion 59 spacer tabs 111. The end wall portion 56 has adjacent its opposite end projecting toward the spacers 111 locking tabs 112 which are similar to the locking tabs 43 above set forth.

In the modification of Fig. 5 side extensions portions 30 are modified over that shown in Fig. 1 by having formed therein near their outer ends and adjacent the bottoms thereof slots 62 which, as will presently be described are means for holding the end wall in operative position.

The assembly of the box or carton part from the blank of Fig. 5 is substantially identical with that above set forth with respect to the blank 15 of Fig. 1, except that the end walls are arranged to provide a shoulder in line with the shoulder of the side walls. Accordingly after the positioning of the corners 44 as above described the end extension portion 56 is folded along the line 51 into engagement with the portion 55 whereupon the portion 57 is folded normal to the portion 56 along the fold line 52 and the portion 58 is folded on the fold line 53 normal to the portion 57 and to lie parallel with the portion 55 but spaced therefrom. Prior to the folding of the portion 58 along the line 53 the spacing tabs 111 and the portion 59 were folded upwardly, as seen in Fig. 5, normal to the portion 58 along the fold lines 54, 109 and 110, respectively, and the portion 59 now engages with the panel 16 and acts as a spacer for spacing the lower end of the portion 58 from the portion 55 for spacing the portions 58 from the portion 55, and thereby providing inner and outer end wall sections between the panel 16 and shoulder 57. At this time the lugs 60 and 61 are snapped into the slots 62 which are positioned at the bottoms of the inner side wall sections.

As was noted above this box or carton part is adapted to be used with a hollow wall carton by having the portion of the said side and end walls up to the shoulder telescopically receiving the carton as illustrated clearly in Fig. 4. It should be noted that the width of the shoulder as formed by side wall extensions portions 29 and/or end wall extensions portions 57 is substantially equal to the width of the top of the wall of the hollow wall carton employed therewith, all as clearly illustrated, and above noted, in Fig. 4.

There is illustrated in Figs. 9 to 12 inclusive, a blank and assembled carton for use with the shouldered cover above described. As there shown the carton comprises a blank 63 which provides a panel 64 bounded by crease or fold lines 65, 66, 67 and 68. Extending from fold lines 66 and 67 are side extensions 69' and 69 identical in construction, wherefor a description of one will suffice for both. The side extension 69 is provided with parallel fold lines 70, 71 and 72 dividing the side extension into side extension portions 73, 74, 75 and 76. The opposite ends of the portion 75 has connected thereto along fold lines 77, tucking flaps 78. Each tucking flap is provided with a fold lines 79 to provide a spacer tab 80 at the upper end thereof. In addition the side extension portion 75 is provided substantially at the bottom thereof and at opposite ends with inclined slots 81 and 82, whose purpose will be subsequently pointed out. The portion 75 is also provided substantially at its top and near its one end with a lug 83.

The panel 64 has projecting from its end fold lines 65 and 68 end extensions 84 and 85 substantially identical in construction wherefore a description of one will suffice for the other. Accordingly end extension 84 has parallel fold or crease lines 86, 87 and 88 providing end wall extension portions 89, 90, 91 and 92. End wall portion 91 is latterly defined by score or fold lines 93 and 94 which respectively hingedly attach spacer lugs 95 and 96 to the end wall extension portion 91. Cut out of the spacer lugs 95 and 96 and integral with the ends of portion 91 are tabs 97 and 98 adapted, as will readily appear, to lock end walls in assembled position.

Between adjacent edges of the end wall extensions and the side wall extensions are corner pieces 99 substantially identical in construction and operation with the corner pieces 44 above described.

The blank 63, similar to the blank 15, is cut or died from paper or cardboard material with the crease lines simultaneously formed therein as above described. Adhesive is then applied of the under surface, as seen in Fig. 9, to the side extensions portions 76 whereupon portions 75 and 76 are folded on the crease lines 71 onto side extension portions 74 and 73 and then all side extensions portions are folded on crease lines 67 to bring the side extensions 68 and 69 to the position illustrated for side 68 of Fig. 9. It is in this position that the carton is shipped to the user who, when desiring to use same, merely lifts the sides from their flat position to their upstanding position as illustrated in Fig. 10 whereupon the end flaps 84 and 85 are folded on their various fold and crease lines, as described in connection with the end extension 49 of the carton or box part illustrated in Fig. 5 which will bring the tabs 97 and 98 into position to enter the slots 81 and 82. The only difference in this assembly is that after the side wall extensions 68 and 69 are in vertical position the tucking flaps 78 thereof are folded across the panel 64 and end spacer tabs bent normal thereto to lie parallel with the base panel 64.

It should be noted that portions 90 of end extensions 84 and 85 are of different widths as are end extensions portions 89 and 91 as between themselves. In other words portions 89 of each end extension are of the same width as are portions 91 but said portions 89 of each end extension is slightly narrower than their respective portions 91. By this construction the portions 91 will be angled to the portions 89 when in final assembly as clearly illustrated in Fig. 11, and with the portion 91 of end extension 84 inclining toward the bottom of its portion 89 or beneath its portion 90 while the portion 91 of the end extension 85 inclines away from the bottom of its portion 89 and beyond its portion 90. As was noted above the purposes for this construction are

to permit the angular display of articles of merchandise, indicated in phantom lines in Fig. 11 by reference numeral 100, and at the same time hold the length of the blank and the assembled carton to a practical minimum. The end walls of the carton are retained in position against collapse by the spacer lugs 95, 96 and 83 and by the end extensions spacer portions 92, all as clearly illustrated in Fig. 11.

In order to prevent the disarrangement of the articles 100 upon removal, for example, of the first one, there is provided in the carton means for preventing the lower end thereof from sliding forward due to its angular position. This means conveniently takes the form of a piece of so called "corrugated" board 101 which is provided transversely thereof with successive undulation 102. As is readily apparent from an inspection of Fig. 11 the lowermost corner of the articles 100 is disposed in the valley between successive ridges with the bottom of the article against the forward undulation and with the rear side of the last article in the carton engaging the upper corner of the inner wall member of the hollow end wall. While the standard corrugated board actually fills the need for a means for maintaining the articles in the desired position it will be understood that a stepped member may be substituted therefore.

In Figs. 13 and 14 there is shown a further modification in the construction of the blank for making an internally shouldered cover, carton or the like, which is particularly useful when a shallow construction or carton part is desired. In this construction the end wall extension 103 is of substantially uniform width from the panel end wall fold line 20 and said extension is provided with transverse crease or fold lines 104 and 105 providing end wall extension portions 106, 107 and 108.

With this construction of blank the carton part end wall is assembled as follows:

After the side walls are in position and the bellows corners arranged the end wall extension 103 is partly elevated about fold line 20 whereupon the portions 107 and 108 are partly folded about fold lines 104 and 105. The portions 106, 107 and 108 thus assume the positions illustrated in dotted lines in Fig. 14 whereupon the portion 108 is inserted behind the shoulder and inner member of the side wall and the outer end of the portion 108 dropped down to engage the panel. In other words the end wall extension 103 may, in effect, be rolled over the tops of the bellow corners after they are positioned and locked behind the shoulder portion and side wall inner member through their height. This, so called, "rolling" of the end wall extension is made possible by the fold line 105 working in conjunction with the fold line 104, and is particularly useful on relatively shallow constructions.

It is believed the foregoing clearly discloses a construction for accomplishing the objects initially set forth, in that, a shouldered carton part is provided which co-operates with a hollow wall carton part in providing a completely enclosing carton which will take the usual punishment given any box or carton and will prevent damage to the goods within the carton and will not collapse under unusual adverse treatment.

What is claimed is:

1. In a carton part of the class described the combination of a panel, walls extending from two opposed sides thereof each having a first wall member hingedly connected to and extending from the side of the panel at an angle thereto, a second wall member extending at an angle to the panel and parallel with the first wall member, said wall members being spaced apart for a portion of their height and contacting one another for the remaining portion of their height, a shoulder member having its opposite edges hingedly connected, respectively, with the upper edge of the spaced second wall portion and lower edge of the contacting second wall portion and of a length substantially equal to the length of one of said portions thereby forming a shoulder along said walls spaced from the panel, and a flap hingedly attached to said second wall member and secured to the panel in such position as to have its hinge connection with said second wall spaced from the hinge connection of the first wall member with the panel a distance equal to the width of the shoulder member whereby the wall and shoulder members may be folded onto one another and onto the panel, and walls extending from the remaining sides of the panel, comprising inner and outer wall members folded on one another with the inner wall members having locking tabs adapted to engage behind the inner spaced side walls members.

2. In a carton part of the class described the combination of a panel, walls extending from two opposed sides thereof each having a first wall member hingedly connected to and extending from the side of the panel at an angle thereto, a second wall member extending at an angle to the panel and parallel with the first wall member, said wall members being spaced apart for a portion of their height and contacting one another for the remaining portion of their height, a shoulder member having its opposite edges hingedly connected, respectively, with the upper edge of the spaced second wall portion and lower edge of the contacting second wall portion and of a length substantially equal to the length of one of said portions thereby forming a shoulder along said walls spaced from the panel, and a flap hingedly attached to said second wall member and secured to the panel in such position as to have its hinge connection with said second wall spaced from the hinge connection of the first wall member with the panel a distance equal to the width of the shoulder member whereby the wall and shoulder members may be folded onto one another and onto the panel, and walls extending from the remaining sides of the panel, comprising inner and outer wall members folded on one another with the inner wall members having locking tabs adapted to engage behind the inner spaced side walls members and the inner wall members having additional locking tabs adapted to engage behind the shoulder members.

3. In a carton part of the class described the combination of a panel, walls extending from two opposed sides thereof each having a first wall member hingedly connected to and extending from the side of the panel at an angle thereto, a second wall member extending at an angle to the panel and parallel with the first wall member, said wall members being spaced apart for a portion of their height and contacting one another for the remaining portion of their height, a shoulder member having its opposite edges hingedly connected, respectively, with the upper edge of the spaced second wall portion and lower edge of the contacting second wall portion and of a length substantially equal to the length of one of said

portions thereby forming a shoulder along said walls spaced from the panel, and a flap hingedly attached to said second wall member and secured to the panel in such position as to have its hinge connection with said second wall spaced from the hinge connection of the first wall member with the panel a distance equal to the width of the shoulder member whereby the wall and shoulder members may be folded onto one another and onto the panel, and walls extending from the remaining sides of the panel, each comprising a first wall member extending from the end of the panel, at an angle thereto, a second wall member extending at an angle to the panel and parallel with the first wall member, said wall members being spaced from one another for a portion of their height and contacting one another for the remaining portion of their height, and one of said wall members having a portion between the spaced apart and contacting portions thereof to form a shoulder along the end walls in line with the shoulders of the side walls.

4. In a carton part of the class described the combination of a panel, walls extending from two opposed sides thereof each having a first wall member hingedly connected to and extending from the side of the panel at an angle thereto, a second wall member extending at an angle to the panel and parallel with the first wall member, said wall members being spaced apart for a portion of their height and contacting one another for the remaining portion of their height, a shoulder member having its opposite edges hingedly connected, respectively, with the upper edge of the spaced second wall portion and lower edge of the contacting second wall portion and of a length substantially equal to the length of one of said portions thereby forming a shoulder along said walls spaced from the panel, and a flap hingedly attached to said second wall member and secured to the panel in such position as to have its hinge connection with said second wall spaced from the hinge connection of the first wall member with the panel a distance equal to the width of the shoulder member whereby the wall and shoulder members may be folded onto one another and onto the panel, and walls extending from the remaining sides of the panel, each comprising a first wall member extending from the end of the panel, at an angle thereto, a second wall member extending at an angle to the panel and parallel with the first wall member, said wall members being spaced from one another for a portion of their height and contacting one another for the remaining portion of their height, and one of said wall members having a portion between the spaced apart and contacting portions thereof to form a shoulder along the end walls in line with the shoulders of the side walls and co-operating means on the spaced portions of the side and end walls for locking the walls in their angled positions with respect to the panel.

5. In a package of the class described the combination of a carton comprising side and end walls upstanding from the bottom, two or said opposed walls being hollow and comprising spaced inner and outer wall members with a top therebetween, a cover having depending walls and a top, two of said depending walls comprising inner and outer parallel wall members contacting one another for a portion of their height, corresponding substantially to the depth of the carton, and with the remaining portion of said wall members spaced from one another for the remaining portion of their height and with a connecting portion at the inner ends of the contacting portion of the wall members forming a shoulder interiorly of the cover for engaging the top of the carton hollow walls.

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