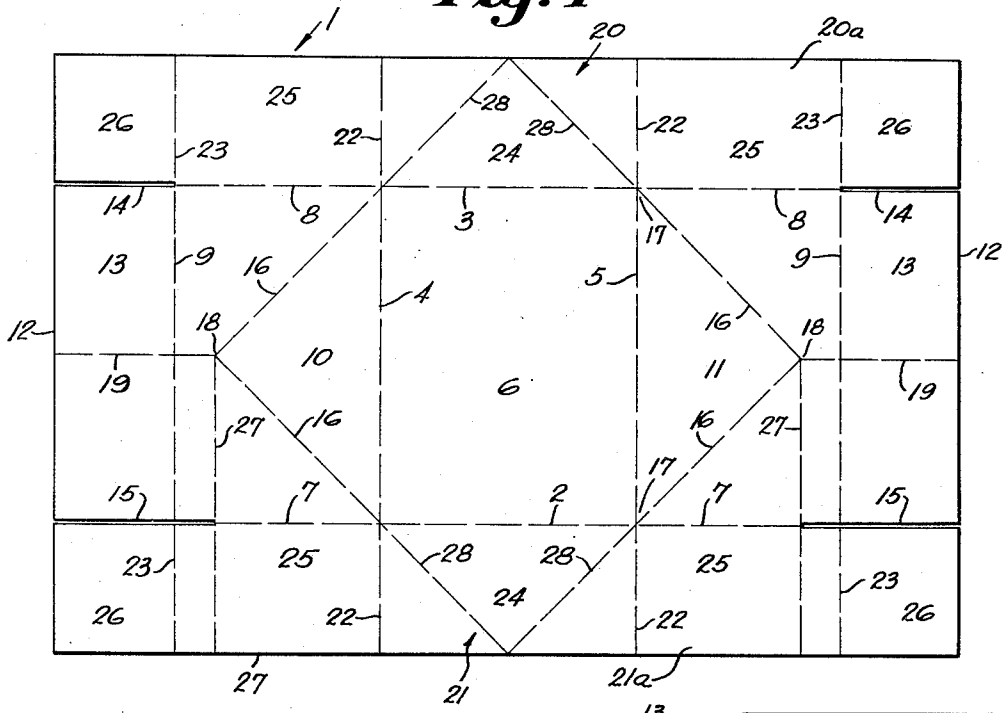
July 20, 1948. A. BERKE 2,445,467

SHIPPING CONTAINER

Filed Oct. 23, 1947 6 Sheets-Sheet 1

Fig. 1



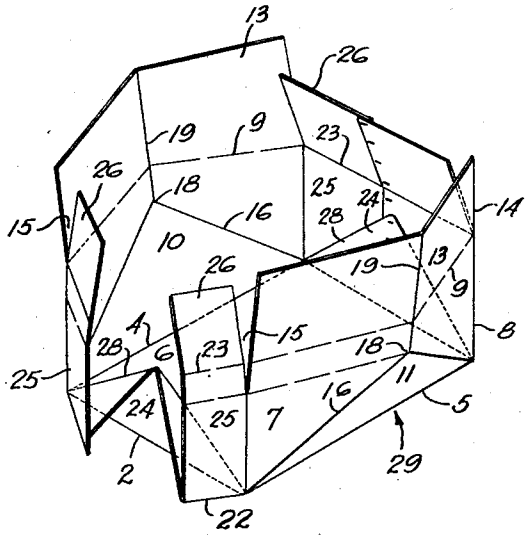


Fig. 2

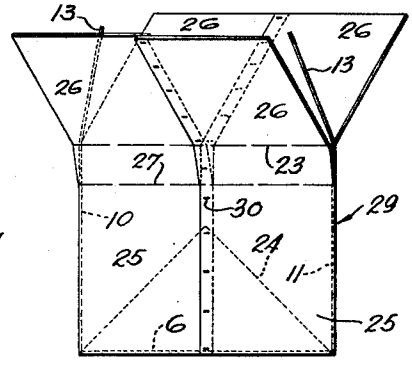


Fig. 3

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July 20, 1948. A. BERKE 2,445,467

SHIPPING CONTAINER

Filed Oct. 23, 1947 6 Sheets-Sheet 2

Fig. 5

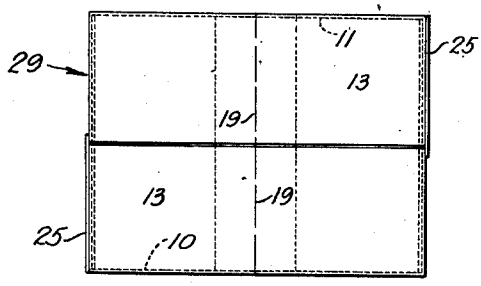


Fig. 6

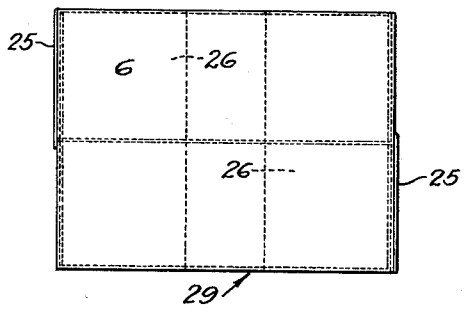


Fig. 4

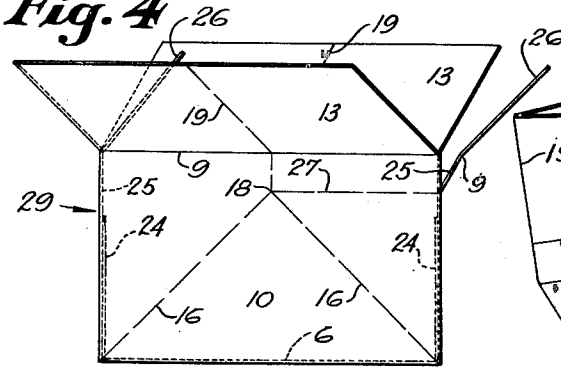
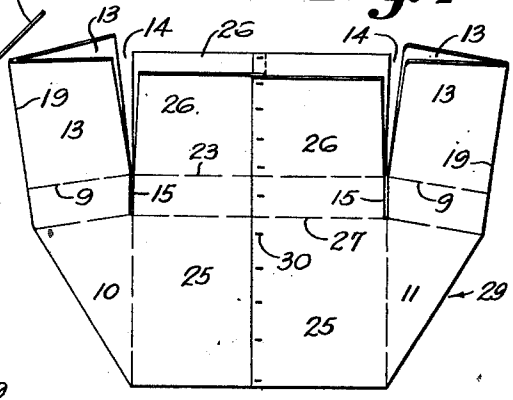


Fig. 7



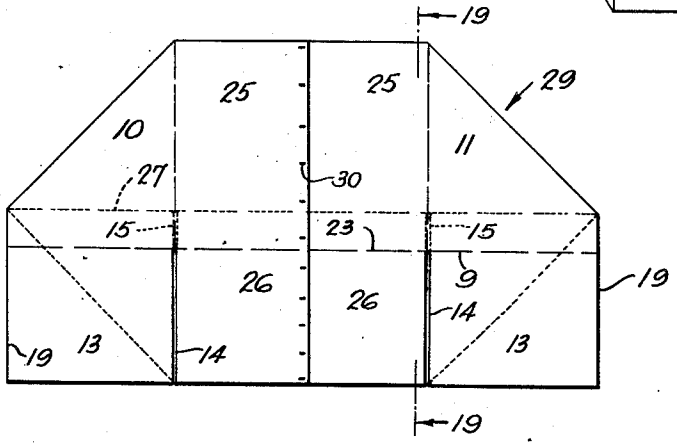


Fig. 8

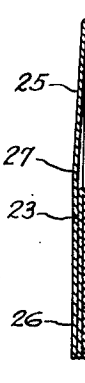


Fig. 19

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July 20, 1948. A. BERKE 2,445,467

SHIPPING CONTAINER

Filed Oct. 23, 1947 6 Sheets-Sheet 3

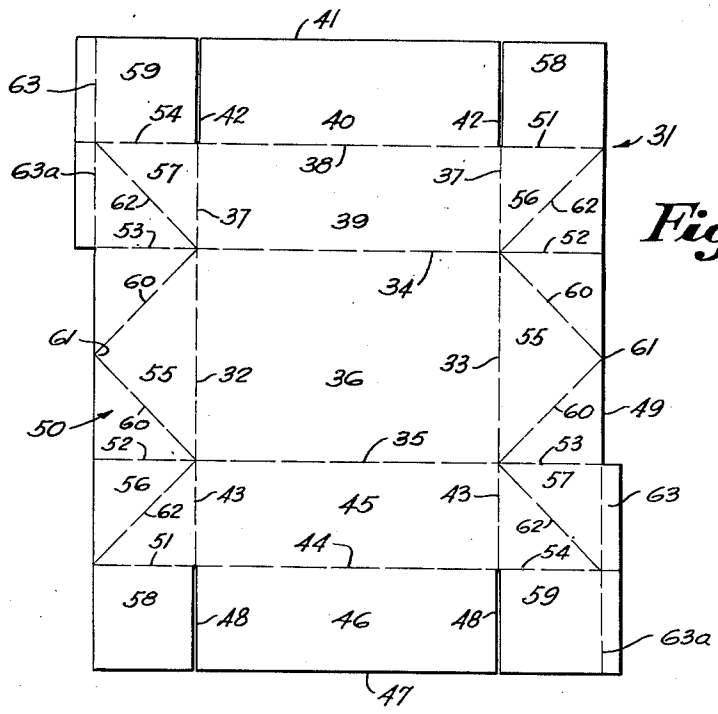


Fig. 9

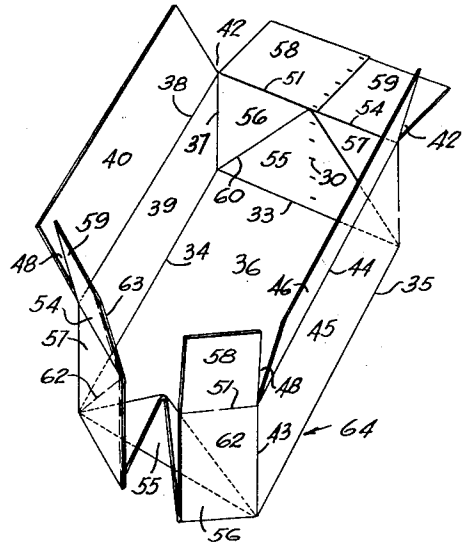


Fig. 10

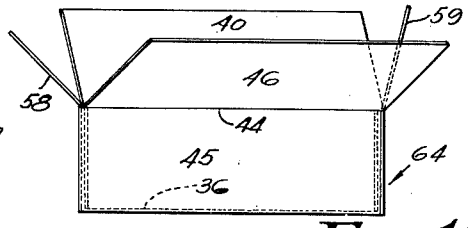


Fig. 11

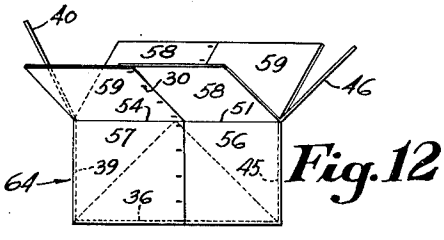


Fig. 12

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July 20, 1948. A. BERKE 2,445,467

SHIPPING CONTAINER

Filed Oct. 23, 1947 6 Sheets-Sheet 4

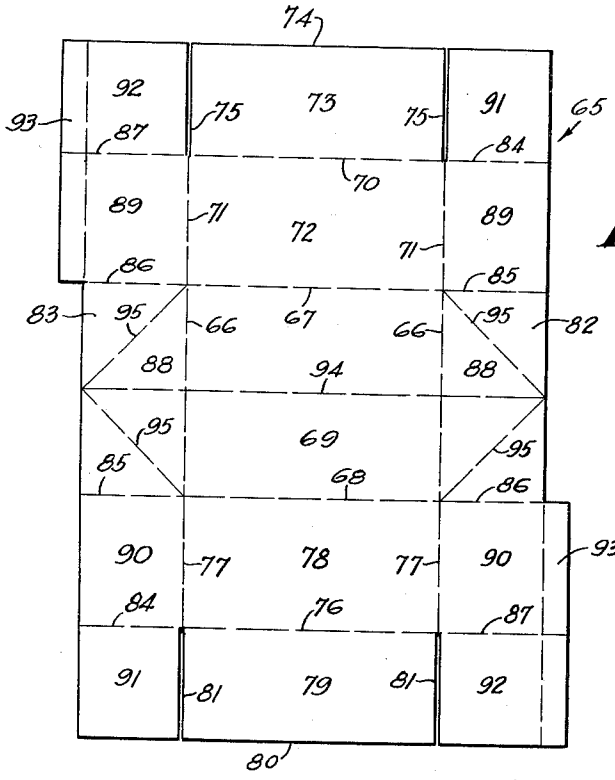


Fig. 15

Fig. 16

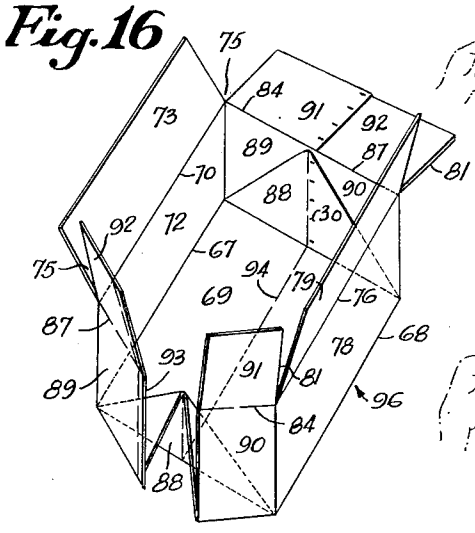
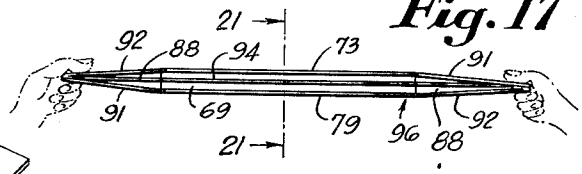


Fig. 17



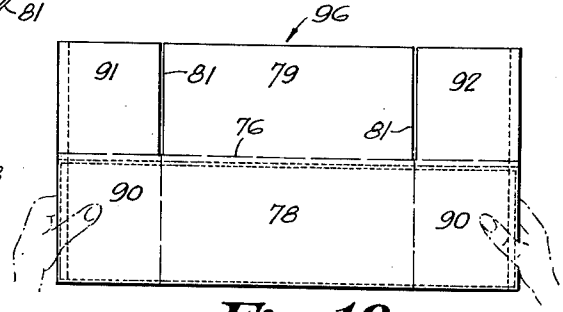


Fig. 18

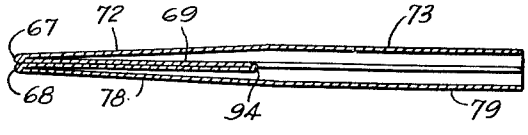


Fig. 21

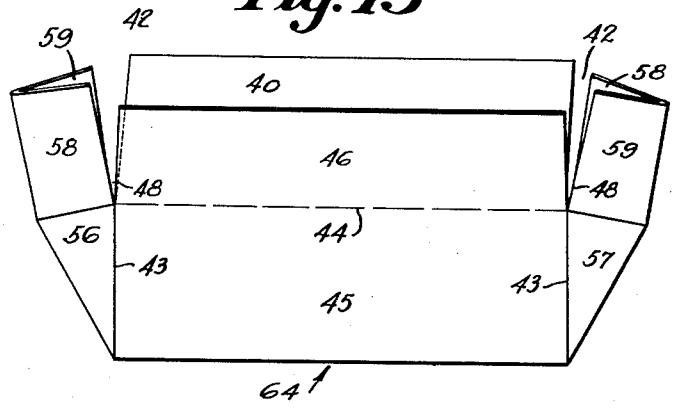
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July 20, 1948. A. BERKE 2,445,467

SHIPPING CONTAINER

Filed Oct. 23, 1947 6 Sheets-Sheet 5

Fig. 13



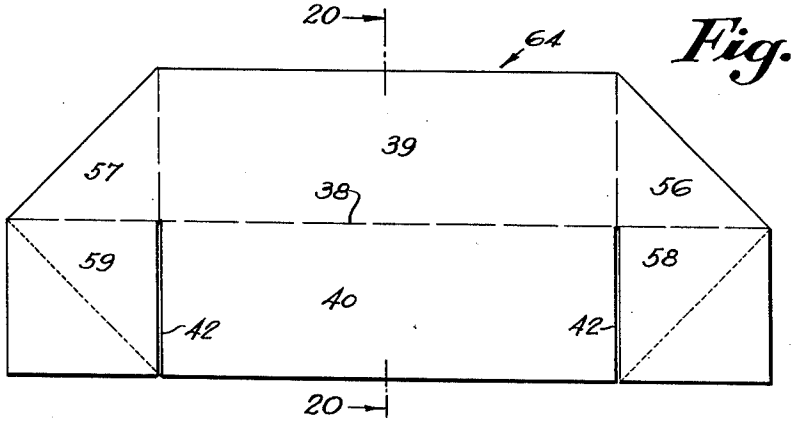


Fig. 14

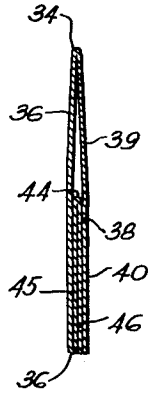


Fig. 20

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July 20, 1948. A. BERKE 2,445,467

SHIPPING CONTAINER

Filed Oct. 23, 1947 6 Sheets-Sheet 6

Fig. 22

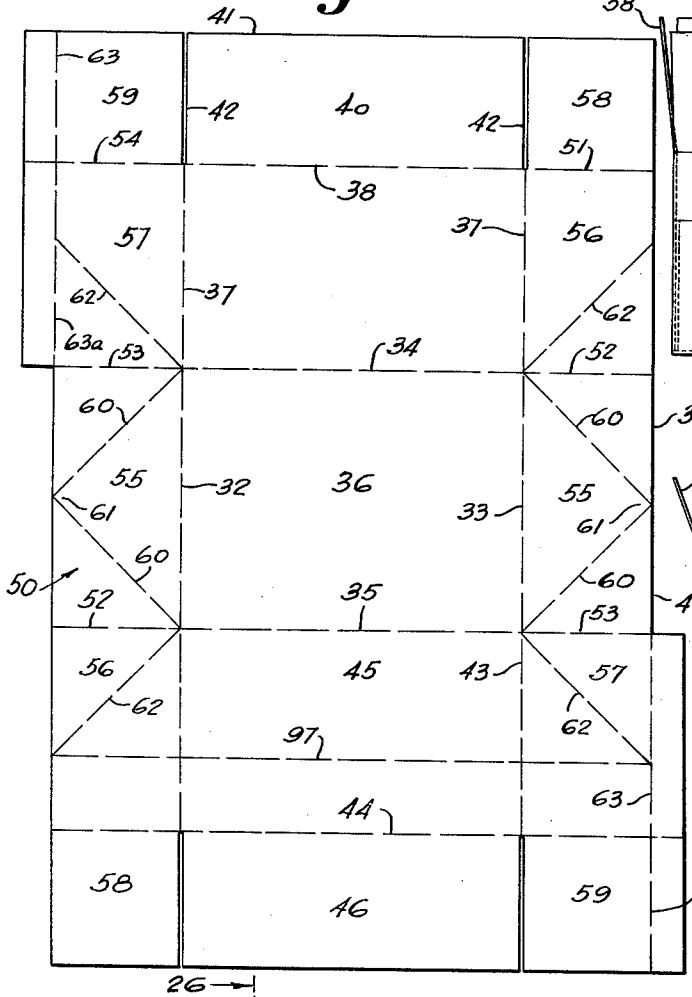


Fig. 23

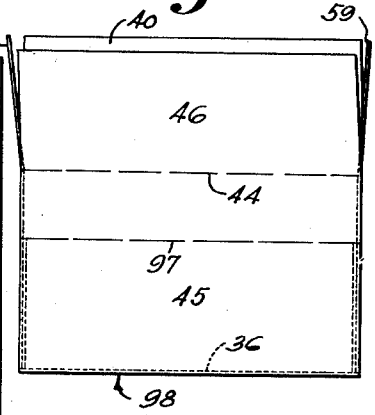
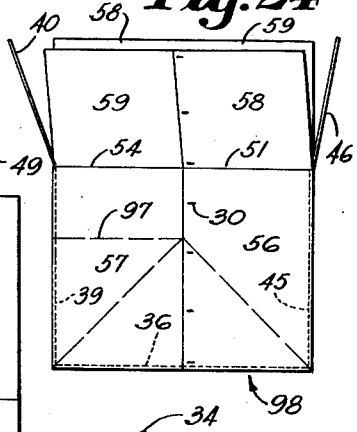


Fig. 24



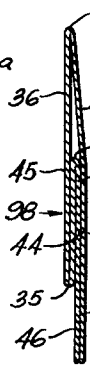


Fig. 26

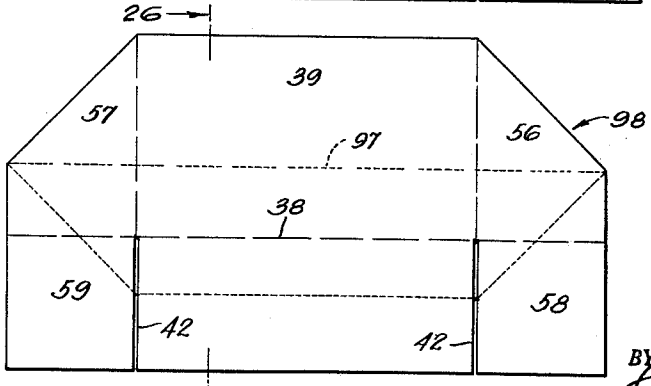


Fig. 25

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Patented July 20, 1948 2,445,467

UNITED STATES PATENT OFFICE

2,445,467

SHIPPING CONTAINER

Aaron Berke, New York, N. Y., assignor to Victory Container Corporation, New York, N. Y., a corporation of New York

Application October 23, 1947, Serial No. 781,715

7 Claims. (Cl. 229—41)

1

This invention relates to collapsible shipping containers made from fibrous material, as cardboards, fibreboards, etc. Such containers presently consist of four joined collapsed walls having flaps at their ends, and the container is erected by separating said walls and folding over the flaps to provide the top and bottom of the container. These containers possess various well known disadvantages, among which is the labor and time required for folding and securing the flaps by the shipper for creating the bottom wall of the container, and the inherent weakness of such wall, which being most subjected to the loads and strains of the contents tends to separate said flaps and cause breakage at its corners.

The principal object of the invention is to provide an improved collapsible shipping container which will remedy the aforesaid and other disadvantages, and which will be conveniently and economically manufacturable, saleable at low cost, of enhanced and reinforced strength, and conveniently utilizable.

Another object is to provide an improved collapsible shipping container, which when unfolded for erection will form a unitary flap-less bottom wall provided with added strength and reinforcement for its corners.

Other objects and advantages will hereinafter appear.

In the accompanying drawings,

Fig. 1 is a plan view of a fibre blank for therefrom making the collapsible shipping container constituting the invention.

Fig. 2 is a perspective view illustrating the manner of making and erecting the container from the blank shown in Fig. 1.

Fig. 3 is a front elevational view of the completed and erected shipping container of the invention.

Fig. 4 is a left side elevational view of the container shown in Fig. 3.

Fig. 5 is a top plan view of the container as seen in Fig. 4, but showing the top flaps thereof in closed state.

Fig. 6 is a bottom plan view of the container, as seen in the position shown in Fig. 4.

Fig. 7 is a perspective view showing the container in partially collapsed state.

Fig. 8 is a plan view of the container, as it appears when in fully collapsed condition.

Fig. 9 is a plan view of a fibre blank for therefrom making a collapsible shipping container which is a modification of the invention.

Fig. 10 is a perspective view illustrating the manner of making and erecting the container from the blank shown in Fig. 9.

2

Fig. 11 is a front elevational view of the completed and erected shipping container illustrated in Fig. 10.

Fig. 12 is a side elevational view of the container shown in Fig. 11.

Fig. 13 is a perspective view of the container in Fig. 11, showing it in partially collapsed state.

Fig. 14 is a plan view of the container in Fig. 11, as it appears when in fully collapsed condition.

Fig. 15 is a plan view of a fibre blank for therefrom making a collapsible shipping container which is another modification of the invention.

Fig. 16 is a perspective view illustrating the manner of making and erecting the container from the blank shown in Fig. 15.

Fig. 17 is a top plan view of the container in Fig. 16, as it appears when in fully collapsed condition.

Fig. 18 is a front elevational view of the collapsed container as seen in Fig. 17.

Fig. 19 is a transverse cross-sectional elevational view of the collapsed container shown in Fig. 8, taken on line 19—19 of the latter.

Fig. 20 is a view similar to Fig. 19, taken on line 20—20 of Fig. 14.

Fig. 21 is a transverse cross-sectional elevational view of the collapsed container shown in Figs. 17, 18, taken on line 21—21 in Fig. 17, in an enlarged scale.

Fig. 22 is a plan view of a fibre blank for therefrom making a collapsible shipping container which is a further modification of the invention.

Fig. 23 is a front elevational view of the completed and erected shipping container derived from the blank shown in Fig. 22. Fig. 24 is a right side elevational view of the container shown in Fig. 23.

Fig. 25 is a plan view of the container shown in Figs. 23, 24, illustrating it as it appears when in fully collapsed condition.

Fig. 26 is a transverse cross-sectional elevational view of the collapsed container shown in Fig. 25, taken on line 26—26 of the latter.

The blank 1 is rectangular and its median area is provided with scorings 2, 3, 4, 5 defining the bottom wall 6 of the container. Adjacent the wall 6, the blank is provided with scorings 7, 8, 9 defining the side walls 10, 11 of the container, and between each of said side walls and the lateral margin 12 of the blank is an area 13 representative of the closing side flap of the container, this flap being defined by a rear through slit 14 which is in alignment with the scorings 3, 8 and by a

front through slit 15 in alignment with the scorings 2, 7. Each of the side walls 10, 11 is provided with oblique scorings 16 extending from its corners 17 and meeting at an apex 18, and each flap 13 is bisected by transverse scorings 19 extending from the blank margin 12 to the apex 18. The rear remainder portion 20 of the blank 1 and its front remainder portion 21 are provided with scorings 22, 23 defining areas 24 adjacent the bottom wall 6, areas 25 adjacent each side wall 10, 11, and corner areas 26 defined by the rear scorings 23 and slits 14 and the front scorings 23 and slits 15. Between each apex 18 and parallel to the scorings 9, 23 extends a scoring 27 to the front margin 28 of the blank, and each slit 15 extends to the scoring 27. The rear corner areas 26 are together representative of the rear closing flap of the container, the front corner areas 26 form together the front closing flap of the container, and the aggregate areas 24, 25 comprise the front and rear walls of the container. Each area 24 is provided with oblique scorings 28, as shown.

In the erection of the container 29, Figs. 3, 4, 5, 6, from the blank 1, the side walls 10, 11 are lifted vertically over the bottom wall 6 along its scorings 4, 5, and the remainder portions 20, 21 are folded up in the manner illustrated by the front remainder portion 21 in Fig. 2, until upon their full foldments illustrated by the rear remainder portion 20 the areas 24, 25 become the front and rear walls of the container, and the corner areas 26 become its front and rear flaps. The margins 21*a* are then secured to each other and to the folded-up area 24 by means of staples 30 or in any other suitable manner as shown in Fig. 3, and the margins 20*a* are similarly so secured, to complete the container 29. In the finished erected container 29 the folded-up areas 24 act as strengthening of its front and rear walls and for reinforcement of the corner regions of the flapless bottom wall 6, whereat the load and strain from the contents are often most severe.

In order to collapse the container 29, to the form shown in Figs. 8, 19, it is preliminarily conditioned for this purpose by withdrawing from each other its side flaps 13 and side walls 10, 11, through applying the fingers inwardly at the scorings 19, in the manner illustrated in Fig. 7. Then the front wall and triangular side wall portions bounded by scorings 16, 27, 7 are folded against the bottom wall 6 and side wall portions bounded by scorings 5, 16, respectively, and then the rear wall with the side wall areas bounded by scorings 16, 8, 9 are folded against the bottom wall 6 and toward the side wall areas bounded by scorings 5, 16. In this foldment, the narrow areas bounded by scorings 27, 23, 9, Fig. 1, forming the upper part of the front wall, Fig. 3, and the adjoining corner parts of the sidewalls 10, 11, Fig. 4, fold over the scorings 27 against the front wall and the areas 16, 27, 7, as seen in Figs. 8, 19. Also in this final and completed collapsement, the front and rear flaps 26 contact with each other, while each side flap 13 bends over its bisecting scoring 19 and folds up against itself, as illustrated.

The collapsed container 29 may be readily and quickly re-erected by merely uplifting its rear flap and wall, then similarly uplifting the front flap and wall from the bottom wall 6, and then pressing toward each other the upstanding side walls 10, 11 toward each other. The shipper may then fill the container with its contents, and then seal its closing flaps 13, 26 in the usual manner. The container may be supplied to the shipper either in the assembled collapsed condition shown in Figs. 8, 19, or where they are used in very large quantities it may be more practicable to furnish the containers in the blank condition shown in Fig. 1, and the shipper may perform his own erection in manner illustrated in Fig. 2 and securing with the staples 30.

According to the modification of the invention shown in Figs. 9 to 14, the blank 31 has its median area provided with scorings 32, 33, 34, 35 defining the bottom wall 36 of the container. Adjacent the wall 36, the blank is provided with scorings 37, 38 defining the rear wall 39 of the container, and an area 40 between scoring 38, the margin 41, and a pair of slits 42 is representative of the rear flap of the container. Similarly, adjacent the wall 36, the blank is provided with scorings 43, 44 defining the front wall 45 of the container, and an area 46 between scoring 44, the margin 47, and a pair of slits 48 constitutes the front flap of the container. The right remainder portion 49 of the blank 31 and its left remainder portion 50 are provided with transverse scorings 51, 52, 53, 54, defining areas 55 adjacent the bottom wall 36, areas 56, 57 adjacent the rear and front walls 39, 45, and corner areas 58, 59 defined by the scorings 51, 54 and slits 42, 48. Each area 55 is provided with scorings 60 extending diagonally thereof to a meeting apex 61 and each area 56, 57 is diagonally bisected by a scoring 62 as shown. Each of the adjoining areas 59, 57 have a joint tab 63 projecting therefrom. The right corner areas 58, 59 become the right side closing flap of the container, the left corner areas its left side flap, and the aggregate areas 55, 56, 57 comprise its right and left side walls.

In the erection of the container 64, Figs. 11, 12, from the blank 31, the rear and front walls 39, 45 are lifted vertically over the bottom wall 36 along its scorings 34, 35, and the remainder portions 49, 50 are folded up in the manner illustrated in Fig. 10, and similarly to the mode explained in connection with the container 29. In this foldment, the tab 63 is slipped in between the marginal part of the joint areas 56, 58 and the marginal part of the area bounded by scorings 52, 60, and said tab and margins are then secured to each other by means of staples 30, as shown in Fig. 12.

In order to collapse the container 64, Figs. 11, 12, to the form shown in Figs. 14, 20, it is preliminarily conditioned for this purpose by withdrawing away from each other its side flaps 58, 59 and side walls, through applying the fingers inwardly at the median places on said flaps, in the manner illustrated in Fig. 13. Then the front wall 45 with the triangular side wall portions bounded by scorings 43, 62, 54 and 43, 62, 51 are folded against the bottom wall 36, and sidewall areas 33, 60 with 32, 60 scorings, respectively, and then the rear wall 39 with its adjoining corresponding triangular wall portions are folded toward the bottom wall similarly. In this foldment, and final and completed collapsement of the container 64, the rear and front flaps 40, 46 contact with each other, while each side flap 58—59 bends over upon itself along the scoring 63*a* of its tab 63, as illustrated in Figs. 13, 14, 20. The collapsed container 64 may be quickly re-erected by reversing the aforesaid steps, and as described in connection with the container 29.

In the modification shown in Figs. 15 to 18, the blank 65 has its median area provided with scorings 66, 67, 68 defining the bottom wall 69 of the

container. Adjacent the wall 69, the blank is provided with scorings 70, 71 defining the rear wall 72 of the container, and an area 73 between scoring 70, the margin 74, and a pair of slits 75 is representative of the rear flap of the container. Similarly, adjacent the wall 69, the blank is provided with scorings 76, 77 defining the front wall 78 of the container, and an area 79 between scoring 76, the margin 80 and a pair of slits 81 constitutes the front flap of the container. The right remainder portion 82 of the blank 65 and its left remainder portion 83 are provided with transverse scorings 84, 85, 86, 87, defining areas 88 adjacent the bottom wall 69, areas 89, 90 adjacent the rear and front walls 72, 78, and corner areas 91, 92 defined by the scorings 84, 87 and the slits 75, 81. Each of the adjoining areas 92, 89 and 90, 92 have a joined tab 93 projecting therefrom. A through scoring 94 bisects as shown the bottom wall 69 and both of the areas 88, and each half area of the latter is bisected as shown by a diagonal scoring 95, which scorings meet at the terminus of the through scoring 94. The right corner areas 91, 92 become the right side closing flap of the container, the left corner areas its left side flap, and the aggregate areas 88, 89, 90 comprise its right and left side walls.

In the erection of the container 96, Fig. 16, from the blank 65, the rear and front walls 72, 78 thereof are uplifted over the bottom wall 69 along its scorings 67, 68, and the remainder portions 82, 83 are folded up in the manner illustrated, and similarly to the course explained in connection with the containers 29, 64. In this foldment, the right hand tab 93 is slipped in between the marginal parts of the areas bounded by scorings 95, 85 and the scorings 85, 71, 84, the left hand tab 93 is slipped in between the marginal parts of the areas corresponding to the others, and said tabs and margins are then secured to each other by staples 30, as shown in Fig. 16, the tab portion of flap 92 being so secured to the flap part 91 at each side of the container.

To collapse the container 96, Fig. 16, to the form shown in Figs. 17, 18, 21, its side flaps are withdrawn away from each other by applying the fingers inwardly at their median places, whereupon the container at once assumes its collapsed condition. In this collapsing action of the container 96, its bottom wall 69 and triangular portions of areas 88 bounded by the scorings 95, 66 fold up backwardly against themselves about the through scoring 94, in the manner illustrated in Figs. 17, 18, 21. The collapsed container 96 may be quickly re-erected, by merely bearing with the hands against the exterior meeting places of the folded up side walls 89, 90, as indicated in Figs. 17, 18, which simple step immediately and automatically restores the container to its erected form, ready for receiving its contents.

The modification of the invention shown in Figs. 22 to 26 is similar in all practical respects to that shown in Figs. 9 to 14, but the container with its upright walls are higher, and a scoring 97 extends across its front wall 45 and adjoining areas 56, 57 to the termini of the oblique scorings 62, as shown. The erection of the container 98, Figs. 23, 24, is therefore performed similarly to that shown and described in connection with Fig. 10 applicable to the container 64.

In order to collapse the container 98, Figs. 23, 24, to the form shown in Figs. 25, 26, its side walls and side flaps 58, 59 are withdrawn away from each other preliminarily, similarly to the manner illustrated in Fig. 13, and then its front wall 45 and rear wall 39 with their adjoining side wall portions are folded up in manner similarly to that described in connection with Fig. 14 pertaining to the container 64. In this foldment, and final and completed collapsement of the container 98, its front wall 45 and its adjoining side wall areas 56, 57 fold up about the scoring 97 in the manner illustrated in Figs. 25, 26. The re-erection of the collapsed container 98 is quickly performed by reversing the aforesaid steps, and as described in connection with the containers 29 and 64.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. A blank and a shipping container erectable therefrom having a rectangular median portion thereof bordered by scorings to define the bottom wall of the container, said blank having a rectangular portion adjacent each side of said median portion bordered by scorings to define both side walls of the container, the portion of said blank between each of said side walls and the margin of the blank consituting a side flap for closing the container, each of said side flaps being bisected by a transverse scoring, each of said side walls having oblique scorings, each remainder portion of the blank between said bottom wall, said side walls, and said flaps having transverse scorings defining an area adjacent said bottom wall, an area adjacent each of said side walls, and a terminating corner area adjacent each of said flaps, each of said corner areas being separated from its adjacent flap by a slit, each of said areas adjacent said bottom wall having oblique scorings, each of said remainder portions being foldable along all of its said scorings to form a front and a rear wall and a front and rear closing flap of the container through cooperation of the simultaneous folding action of said bottom and side walls along all of their said scorings, and the securing to each other of the margins of each of said remainder portions completing the erection of the container.

2. A blank and a shipping container erectable therefrom having a rectangular median portion thereof bordered by scorings to define the bottom wall of the container, said blank having a rectangular portion adjacent each side of said median portion bordered by scorings to define both side walls of the container, the portion of said blank between each of said side walls and the margin of the blank constituting a side flap for closing the container, each of said side flaps being bisected by a transverse scoring, each of said side walls having oblique scorings, each remainder portion of the blank between said bottom wall, said side walls, and said flaps having transverse scorings defining an area adjacent said bottom wall, an area adjacent each of said side walls, and a terminating area of the corner portion adjacent each of said flaps, each of said corner areas being separated from its adjacent flap by a slit, each area adjacent said bottom wall having oblique scorings, one of said remainder portions being foldable along all of its said scorings to form a rear wall and a rear closing flap of the container through cooperation of the simultaneous folding action of the bottom and side walls along their said scorings, the securing to each other of the margins of said folded remainder portion completing the erection of its said rear wall, the oblique scorings of each of said side walls terminating in an apex remote from its

adjoining side flap, a scoring extending from said apex to the margin of the other of said remainder portions parallelly to said adjoining side flap, the other of said remainder portions being similarly foldable along all of its said scorings to form a front wall and a front closing flap of the container, the margins of said other remainder portion being similarly secured to each other for completing the erection of the container, and said erected container being collapsible by bending said front wall along said scoring extending from said apex and simultaneously folding it toward said bottom wall and following this by folding said rear wall toward said bottom wall.

3. A blank and a shipping container erectable therefrom having a rectangular median portion thereof bordered by scorings to define the bottom wall of the container, said blank having a rectangular portion adjacent the front and the rear edge of said median portion bordered by scorings to define the front and rear walls of the container, said blank having a rectangular portion adjacent each of said walls and extending to the margins of the blank to constitute the front and rear closing flaps of the container, each remainder portion of the blank between said bottom wall, said front and rear walls, and said front and rear flaps having transverse scorings defining an area adjacent said bottom wall, an area adjacent each of said front and rear walls, and a terminating corner area adjacent each of said flaps, each of said corner areas being separated from its adjacent flap by a slit, each area of said remainder portion adjacent said bottom wall having oblique scorings, each area of said remainder portion adjacent said front and rear walls having an oblique scoring, each of said remainder portions being foldable along all of its said scorings to form the side walls and the side closing flaps of the container, and the securing to each other of the margins of each of said remainder portions in their said folded condition completing the erection of the container.

4. A blank and a shipping container erectable therefrom having a rectangular median portion thereof bordered by scorings to define the bottom wall of the container, said blank having a rectangular portion adjacent the front and the rear edge of said median portion bordered by scorings to define the front and rear walls of the container, said blank having a rectangular portion adjacent each of said walls and extending to the margins of the blank to constitute the front and rear closing flaps of the container, each remainder portion of the blank between said bottom wall, said front and rear walls, and said front and rear flaps having transverse scorings defining an area adjacent said bottom wall, an area adjacent each of said front and rear walls, and a terminating corner area adjacent each of said flaps, each of said corner areas being separated from its adjacent flap by a slit, each area of said remainder portion adjacent said bottom wall having oblique scorings, each area of said remainder portion adjacent said front and rear walls having an oblique scoring, each of said remainder portions being foldable along all of its said scorings to form the side walls and the side closing flaps of the container, the securing to each other of the margins of each of said remainder portions in their said folded condition completing the erection of the container, and said erected container being collapsible by the folding of said front and rear walls toward said bottom wall.

5. A blank and a shipping container erectable

therefrom having a rectangular median portion thereof bordered by scorings to define the bottom wall of the container, said blank having a rectangular portion adjacent the front and the rear edge of said median portion bordered by scorings to define the front and rear walls of the container, said blank having a rectangular portion adjacent each of said walls and extending to the margins of the blank to constitute the front and rear closing flaps of the container, each remainder portion of the blank between said bottom wall, said front and rear walls, and said front and rear flaps having transverse scorings defining an area adjacent said bottom wall, an area adjacent each of said front and rear walls, and a terminating corner area adjacent each of said flaps, each of said corner areas being separated from its adjacent flap by a slit, each area of said remainder portion adjacent said bottom wall having oblique scorings, a scoring line parallel to said front and rear walls bisecting said bottom wall and the said areas of said remainder portions adjacent to said bottom wall, each of said remainder portions being foldable along all of its said scorings to form the side walls and the side closing flaps of the container, and the securing to each other of the margins of each of said remainder portions in their said folded condition completing the erection of the container.

6. A blank and a shipping container erectable therefrom having a rectangular median portion thereof bordered by scorings to define the bottom wall of the container, said blank having a rectangular portion adjacent the front and the rear edge of said median portion bordered by scorings to define the front and rear walls of the container, said blank having a rectangular portion adjacent each of said walls and extending to the margins of the blank to constitute the front and rear closing flaps of the container, each remainder portion of the blank between said bottom wall, said front and rear walls, and said front and rear flaps having transverse scorings defining an area adjacent said bottom wall, an area adjacent each of said front and rear walls, and a terminating corner area adjacent each of said flaps, each of said corner areas being separated from its adjacent flap by a slit, each area of said remainder portion adjacent said bottom wall having oblique scorings, a scoring line parallel to said front and rear walls bisecting said bottom wall and the said areas of said remainder portions adjacent to said bottom wall, each of said remainder portions being foldable along all of its said scorings to form side walls and the side closing flaps of the container, the securing to each other of the margins of each of said remainder portions in their said folded condition completing the erection of the container, and the said erected container being collapsible by the moving of said front walls toward each other.

7. A blank and a shipping container erectable therefrom having a rectangular median portion thereof bordered by scorings to define the bottom wall of the container, said blank having a rectagnular portion adjacent the front and the rear edge of said median portion bordered by scorings to define the front and rear walls of the container, said blank having a rectangular portion adjacent each of said walls and extending to the margins of the blank to constitute the front and rear closing flaps of the container, each remainder portion of the blank between said bottom wall, said front and rear walls, and said front and rear flaps having transverse scorings defining

an area adjacent said bottom wall, an area adjacent each of said front and rear walls, and a terminating corner area adjacent each of said flaps, each of said corner areas being separated from its adjacent flap by a slit, each area of said remainder portion adjacent said bottom wall having oblique scorings, each area of said remainder portion adjacent said front and rear walls having an oblique scoring, said front wall and the areas of said remainder portions adjacent thereto having a scoring line parallel to said bottom wall, each of said remainder portions being foldable

along its scorings to form the side walls and the side closing flaps of the container, the securing to each other of the margins of each of said remainder portions in their said folded condition completing the erection of the container, and said erected container being collapsible by bending said front wall along said scoring thereof extending parallel to said bottom wall and simultaneously folding it toward said bottom wall and following this by folding said rear wall toward said bottom wall.

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