Nov. 22, 1960 H. W. FORRER 2,961,143

TRAY STRUCTURE FOR BOTTLES AND OTHER ARTICLES

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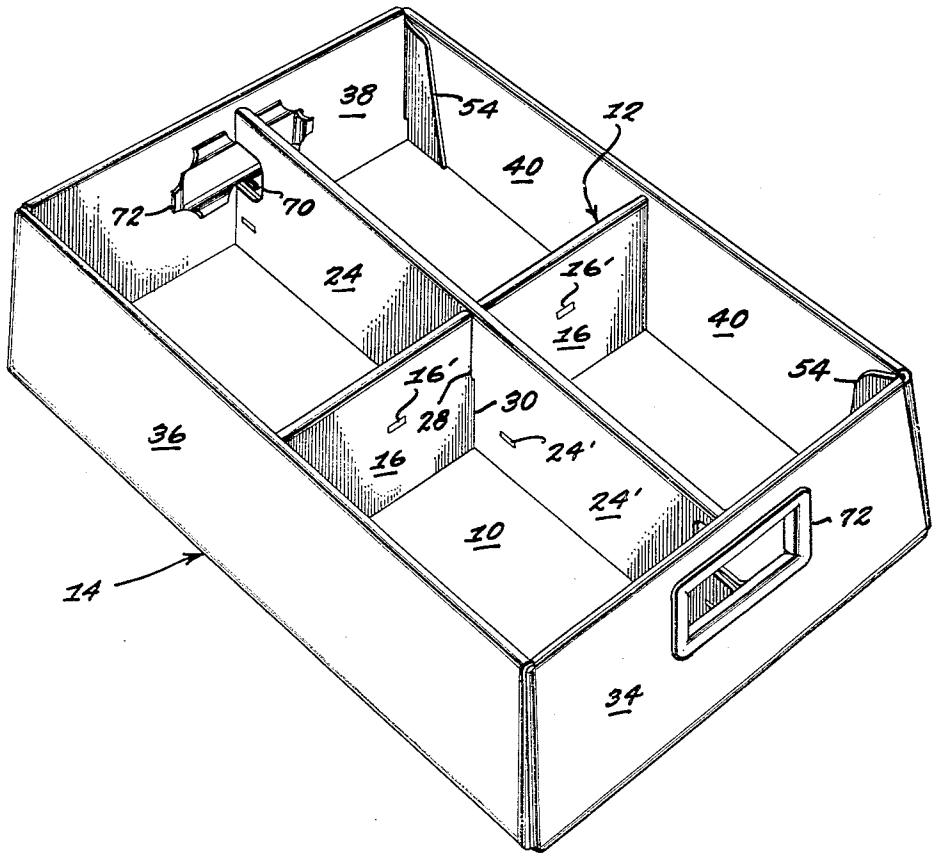
Fig. 1



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TRAY STRUCTURE FOR BOTTLES AND OTHER ARTICLES

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Fig. 2

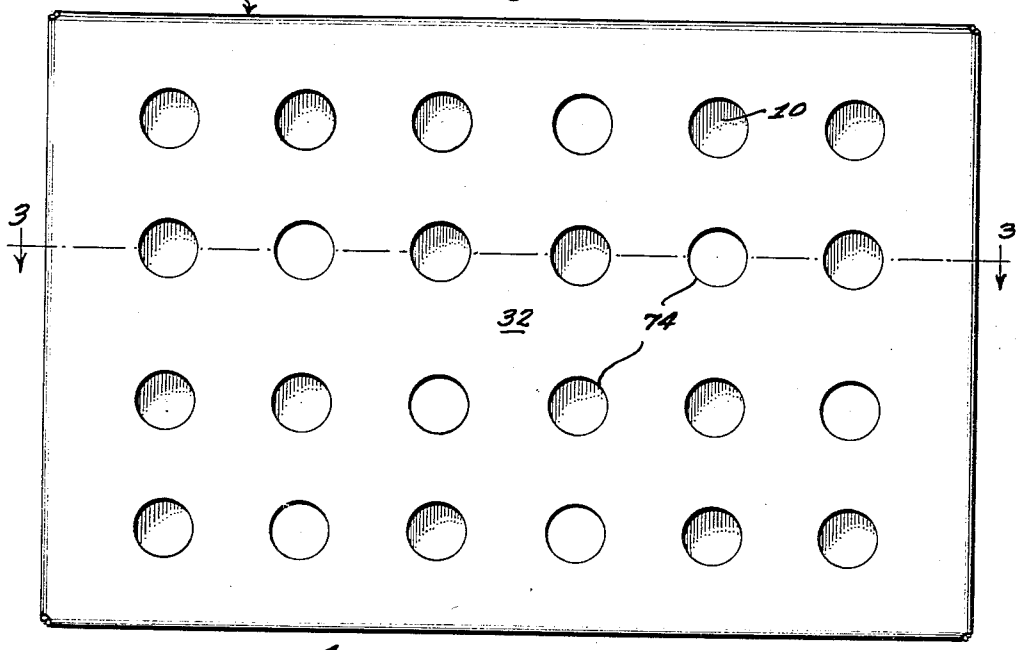


Fig. 3

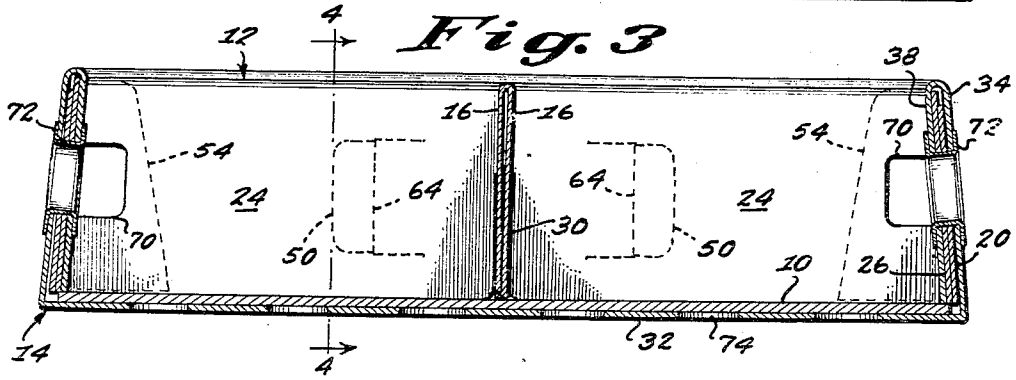
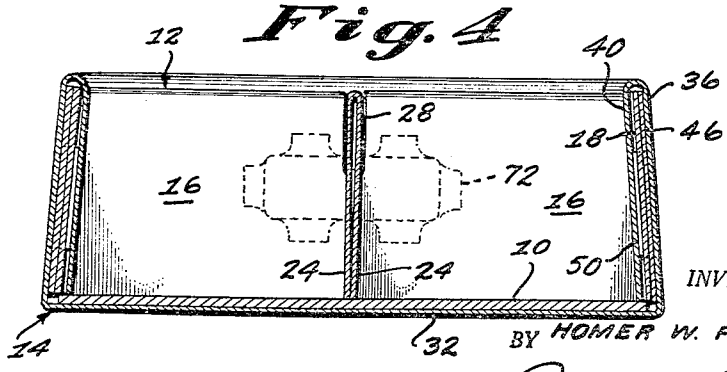


Fig. 4



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TRAY STRUCTURE FOR BOTTLES AND OTHER ARTICLES

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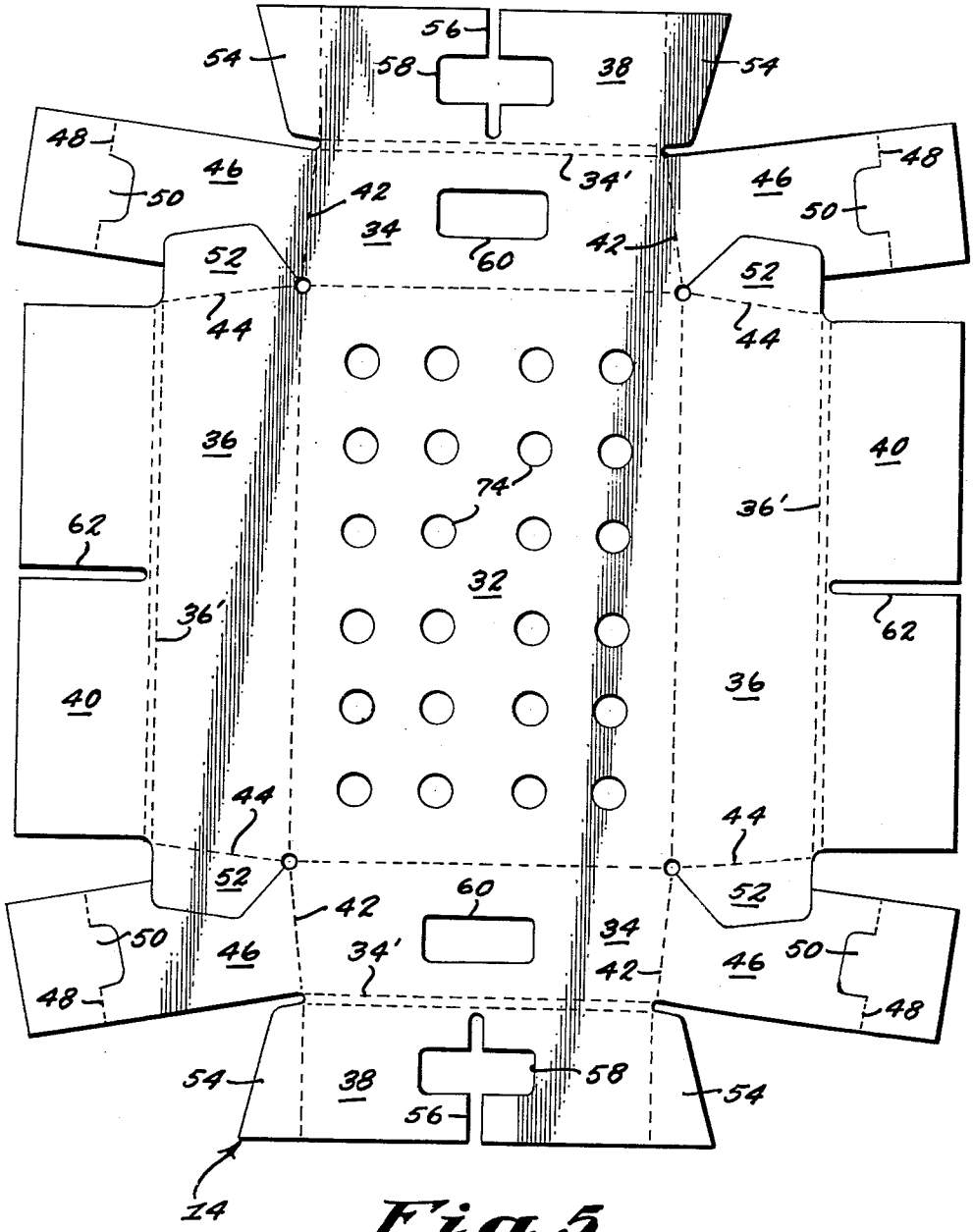

Fig. 5

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Fig. 6

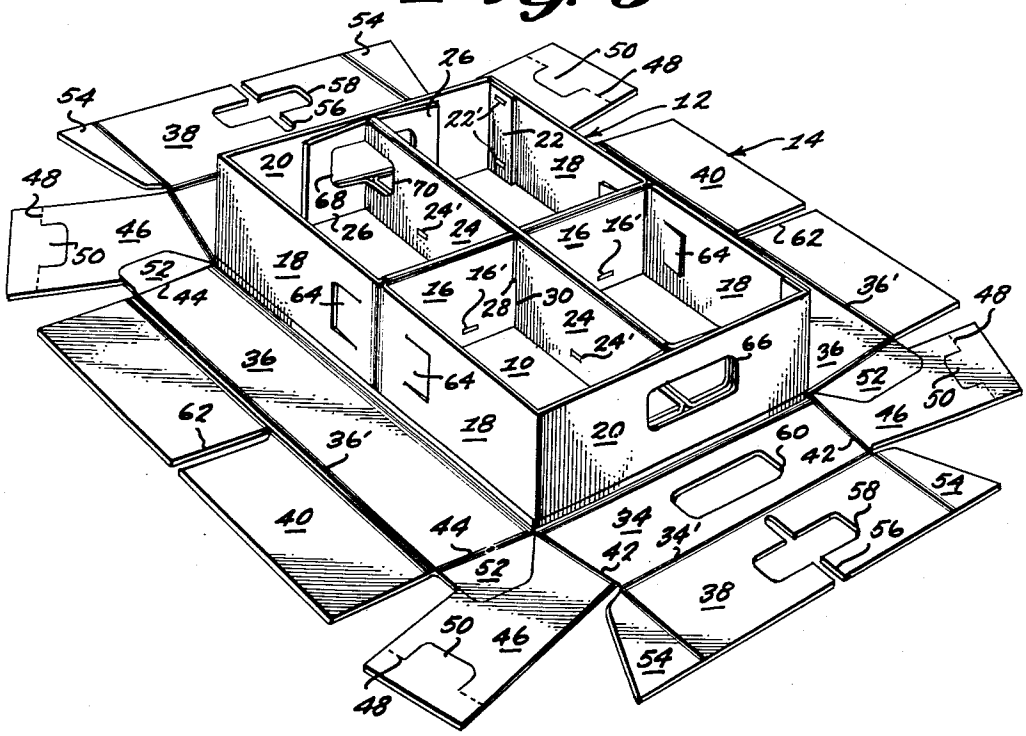

Fig. 7

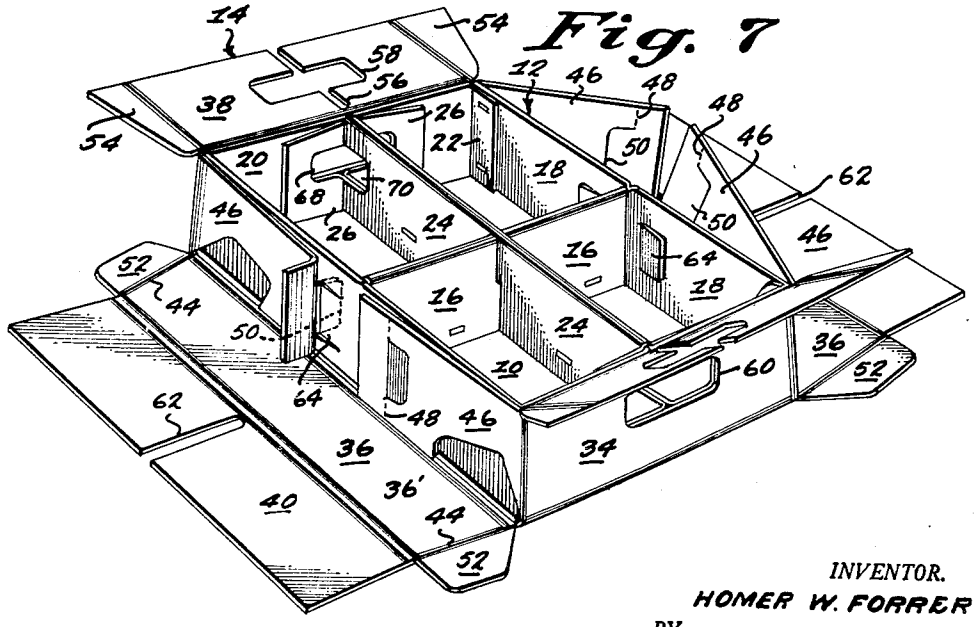

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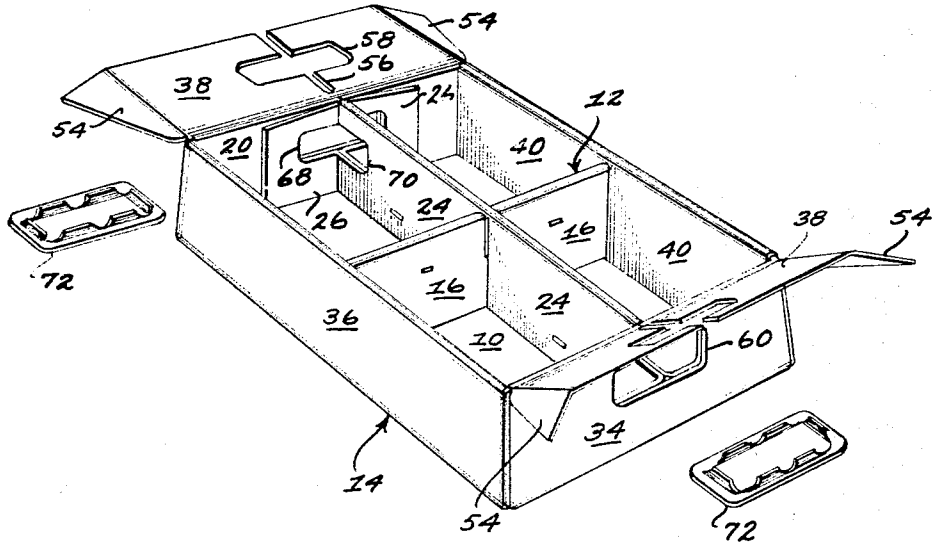
Fig. 8



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2,961,143

TRAY STRUCTURE FOR BOTTLES AND OTHER ARTICLES

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6 Claims. (Cl. 229—28)

This invention relates generally to tray structures and more particularly to a structure of this sort that may be formed entirely of paperboard while providing excellent strength and affording exceptional advantages in formation and use.

The tray structure of the present invention is illustrated and described further below in relation to an embodiment arranged especially for containing a group of bottles standing endwise therein, such as a group formed by four 6-bottle carrier cartons loaded and placed in the tray structure. The characteristic features of the invention, however, are generally applicable for advantageous use wherever a tray structure of the type involved is needed.

Briefly stated, the tray structure provided according to the present invention comprises a bottom pad member, a framing skeleton standing on the pad member, and an outer covering wrap assembled over the pad member and framing skeleton and secured to the latter in a manner that facilitates substantially the operation of assembling the structure and also forms a uniquely tight and strong assembly.

These and other features of the present invention are described in detail below in connection with the accompanying drawings, in which:

Fig. 1 is a perspective view of a completely assembled tray structure embodying the present invention;

Fig. 2 is a bottom plan view of the tray structure shown in Fig. 1;

Fig. 3 is a longitudinal section taken substantially at the line 3—3 in Fig. 2;

Fig. 4 is a transverse section taken substantially at the line 4—4 in Fig. 3;

Fig. 5 is a plan view of the form of blank employed for the outer covering wrap of the tray structure shown in Figs. 1, 2, 3 and 4;

Fig. 6 is a perspective view showing the framing skeleton and bottom pad member placed on the outer covering wrap blank in preparation for assembling the tray structure;

Fig. 7 is a further perspective view corresponding generally to Fig. 6, but illustrating the manner in which corner flaps of the outer covering wrap blank are interlocked with the framing skeleton in the course of the assembly operation; and

Fig. 8 is another perspective view corresponding generally to Figs. 6 and 7, and illustrating the arrangement of the tray structure just prior to the final assembly step by which the Fig. 1 form of the tray structure is obtained.

Referring now in detail to the drawings, and more particularly at first to Figs. 1 through 4, the previously mentioned bottom pad member of the illustrated tray structure is indicated by the reference numeral **10**, the framing skeleton by the general reference numeral **12**, and the outer covering wrap by the general reference numeral **14**.

The bottom pad member **10** is rectangular in form and corresponds generally in length and width with the size

of the particular tray structure involved; and is relatively thick so as to form a stable and more or less rigid base in the tray structure. This pad member **10** may be formed of heavy paperboard, or of pressed fiberboard, or of plastic, or of any other suitable material desired or required under given circumstances.

The framing skeleton **12** serves primarily the purpose of providing the means on which the end and side walls of the tray structure are formed about the perimeter of the bottom pad member **10**. For this purpose, the framing skeleton **12** employed in the illustrated embodiment comprises a medial strut portion formed by a pair of panels **16** foldably joined at their top edges and doubled and secured (as by staples **16'**) in face-to-face relation, with component side wall panels **18** foldably extending from both ends of each of the medial strut panels **16**, and with an end wall panel **20** extending from one component side wall panel **18** on each medial strut panel **16** and secured to the other component wall panel **18** thereon at a foldably securing flap **22** by means of staples **22'** or the like (see Figs. 6 and 7).

The framing skeleton **12** also preferably comprises, as seen in Figs. 1, 6, 7 and 8, an additional medial strut member formed by a pair of panels **24** foldably joined at their top edges and doubled and secured (as by staples **24'**) in face-to-face relation with pairs of foldable flaps **26** extending oppositely from the respective ends of the strut panels **24**; these end flaps **26** being provided for disposition at the inner faces of the framing skeleton end wall panels **20**, and the medial strut panels **24** being proportioned in length to extend between the end wall panels **20** transversely of the medial strut panels **16**, the latter being slotted from their top edges as indicated at **28** and the latter from their bottom edges as indicated at **30** for internested crossing of the pairs of strut panels **16** and **24** centrally of the tray structure.

The above described arrangement of the framing skeleton **12** makes it possible also to form this portion of the tray structure serviceably of paperboard too, although other materials may be used for this purpose as well and the framing skeleton might be otherwise arranged so long as the primary end and side wall framing function described is provided.

The outer covering wrap **14** is arranged, as seen best in Fig. 5, with a centrally located rectangular panel portion **32** on which opposed pairs of panel portions **34** and **36** are foldably joined at scores extending along substantially the entire perimeter of the rectangular center portion **32**. Each of the panel portions **34** and **36** have substantially medial double scores **34'** and **36'** formed therein parallel to the adjacent perimeter of the center portion **32** so as to define outwardly arranged panel portions **38** and **40** therein which become inner end and side panels in the completed tray structure as is explained further presently.

The rectangular dimensions of the outer covering wrap center panel portion **32** are proportioned to exceed those of the bottom pad member **18**, and the end edge portions of the panels **34** and **36** between the perimeter of the center panel portion **32** and the medial scores **34'** and **36'** parallel thereto are defined by angled scores **42** and **44** inclined inwardly in the direction extending away from the center panel portion **32**. At the angled scores **42** defining the end edges of the end panel portions **34** corner flaps **46** are foldably joined with an angled inclination perpendicular to the angled scores **42**. These corner flaps **46** are further scored transversely at **48** intermediate their length and have slit tabs **50** aligned at the score lines **48** and extending therefrom toward the end wall panel portions **34**.

The side wall panel portions **36** also have flap portions **52** foldably joined at the angled end edge scores **44** there-

of, the outline of these corner flaps **52** being cut partially out of the end wall corner flaps **46** as seen in Fig. 5. In addition, the end wall panel portions **38** have end flap portions **54** foldably joined thereto, and these end wall panel portions **38** are notched to provide a clearance slot **56**, for fitting over the medial strut member formed by the panels **24**, and to provide a hand hold aperture **58**; while the related end wall panels **34** are likewise formed with registering hand hold apertures at **60**. Finally, the side wall panel portions **40** have clearance slots **62** formed therein for fitting over the medial strut panels **16**.

The manner in which this blank for the outer covering wrap **14** is arranged for assembly with the bottom pad member **10** and framing skeleton **12** is illustrated in Fig. 6, in which the pad member **10** is shown superimposed at the center panel portion **32** with the framing skeleton **14** standing thereon in alignment at the bottom pad perimeter.

Fig. 7 shows the initial steps of folding the outer covering wrap **14** into assembled relation with the bottom pad member **10** and framing skeleton **12**, which steps consist of folding the end wall panel portions **34** upwardly against the adjacent end wall panels **20** of the framing skeleton **12**, while folding the corner flaps **46** on the end wall panel portions **34** inwardly at the sides of the framing skeleton **12** for securing thereto by flexing the corner flaps **46**, at the intermediate scores **48** therein, to extend the slit tabs **50** laterally therefrom for securing insertion through openings in the framing skeleton side wall panels **18** which openings are provided at the extending end of slit tabs **64** formed in the side wall panels **18** with an extent directed toward the ends of the framing skeleton **12** and terminating in substantial alignment with the intermediate scores **48** in the corner flaps **46** at the inwardly folded disposition thereof.

Upon such insertion of the corner flap tabs **50**, the full extent of the corner flaps **46** can be extended flat against the adjacent side wall panels **18** of the framing skeleton **12** to allow subsequent upward folding of the outer covering wrap side wall panels **36** as seen in Fig. 8, the portions **40** of these panel portions beyond the medial score lines **36'** therein being further folded inwardly of the framing skeleton **12** so as to complete the assembly of inner and outer covering wall panels thereover.

It then remains to fold the end panel portions **38** beyond the medial score lines **34'** in the outer wrap end panels **34** to form inner and outer covering wall panels at the ends of the tray structure. In this connection, it should be noted that the framing skeleton end wall panels **20** and the end flaps **26** on the medial strut panels **24** are also formed with hand hold apertures as indicated at **66** and **68** in registration with the hand hold apertures **58** and **60** in the covering wrap end panel portions **34** and **38** so that hand holds extending completely through the end walls are provided in the completed tray structure as seen in Fig. 1. The medial strut panels **24** are preferably notched as indicated at **70** to provide clearance for easy access to these hand hold apertures, and finishing plates **72** are preferably seated in covering relation over the composite edges of the hand hold apertures and clinched in place thereat for completing the assembly of the outer covering wrap **14** on the framing skeleton **12** and bottom pad member **10**.

By such an arrangement, the covering wrap end panel portions **34** and **38** are positively secured in place by the finishing plates **72** as well as by the engagement of the corner flaps **46** thereon with the framing skeleton **12**, and the end flaps **54** on the inner covering wrap end panels **38** serve to hold the inner covering wrap side panels **48** securely in assembled relation on the framing skeleton **12**. At the same time, however, it is only necessary to remove the clinched finishing plates **72** in order to allow removal of a damaged or soiled outer covering wrap **14** for replacement readily by a fresh one. On the other hand, such replacement is not apt to be required frequently because of the arrangement of the outer covering wrap **14** with a rectangular center portion of sufficiently greater dimensions than that of the bottom pad member **10** so that the end and side wall covering wrap panel portions assemble over the framing skeleton **12** with an inwardly inclined disposition of the outer end and side panel portions **34** and **36** that has the effect of eliminating any undue rubbing between the sides of adjacent tray structures during handling and thereby minimizes the possibilities for damaging or soiling the side walls of the tray structure during such handling. This inwardly inclined disposition of the tray structure end and side walls also provides for stacking of the tray structures readily upon one another when empty or when containing a load that does not extend above the upper edges thereof.

It should be noted further in this connection that the particular tray structure illustrated in the drawings has the medial strut panels **16** and **24** arranged therein to form four compartments particularly arranged for receiving 6-bottle cartons, as previously mentioned, in which case the carton grouped bottles as arranged in the tray structure would stand therein with the capped upper neck portions thereof extending above the top edges of the tray structure, and when the tray structure is intended for such use the bottom portion **32** of the outer covering wrap **14** is advantageously formed with apertures **74** proportioned to receive the capped tops of the bottles and arranged in a pattern corresponding with the grouping of the bottles in the tray structure, so that this apertured bottom portion **32** serves to engage the tops of bottles in a like tray structure for stable stacking of a group of loaded tray structures.

The present invention has been described in detail above for purposes of illustration only and is not intended to be limited by this description or otherwise except as defined in the appended claims.

I claim:

1. An article of the character described comprising a bottom pad member, an upright framing skeleton standing on said pad member, and a paperboard outer wrap including a bottom wall portion disposed in covering relation over the outer face of said bottom pad and outer and inner end and side wall portions folded over said framing skeleton, the bottom wall portion of said covering wrap being proportioned in relation to the upright standing disposition of said framing skeleton on said pad member whereby at least said outer end wall portions are fixed at an inwardly inclined position upon folding of said covering wrap over said framing skeleton, and the outer wall portions adjacent the inclined outer wall portions being formed with converging side edges, the inclination of said converging side edges substantially corresponding to the inclination of said inclined outer wall portions, whereby the adjacent side edges of adjacent outer wall portions are substantially coextensive.

2. An article of the character described comprising an upright framing skeleton having side and end wall portions, and a paperboard cover wrap having a rectangular bottom wall portion disposed beneath said framing skeleton with opposed pairs of outer and inner end and side wall portions extending from said bottom wall portion in covering relation over said framing skeleton and secured thereto, with at least one of the rectangular dimensions of the bottom wall portion exceeding the corresponding dimension of said upright framing skeleton whereby at least one pair of said outer wall portions is fixed at an inwardly inclined position with respect to the perimeter of said bottom wall portion upon securing of said cover wrap over said framing skeleton, and the outer wall portions adjacent the inclined outer wall portions being formed with converging side edges, the inclination of said converging side edges substantially corresponding to the inclination of said inclined outer wall portions, whereby

the adjacent side edges of adjacent outer wall portions are substantially coextensive.

3. An article of the character described comprising a side and end wall framing skeleton, and a paperboard cover wrap having a rectangular bottom wall portion disposed beneath said framing skeleton with opposed pairs of outer and inner end and side wall portions extending from said bottom wall portion in covering relation over said framing skeleton and secured thereto, one pair of said cover wrap outer wall portions having foldable corner flaps extending endwise therefrom, said corner flaps having tabs slit therein in alignment with transverse score lines from which said tabs extend toward said outer wall portions, and said framing skeleton is slit for securing insertion of said corner flap tabs therethrough in substantial alignment with the transverse score lines at which said tabs are hinged.

4. An article of the character described as defined in claim 3 and further characterized in that said corner flaps extend angularly endwise from said outer wall portions with an inclination in the direction of the upper edges thereof and thereby act to fix said outer wall portions at an inwardly inclined position with respect to the perimeter of said cover wrap bottom wall portion upon securing insertion of said corner flap tabs through said framing skeleton slits.

5. An article of the character described as defined in claim 3 and further characterized in that the other pair of

said cover wrap outer wall portions is formed with foldable corner tabs doubled inwardly at the ends thereof.

6. A paperboard blank adapted to form a cover wrap for an article of the character described, said blank comprising a centrally arranged rectangular panel portion, opposed pairs of panel portions foldably joined at scores along substantially the entire perimeter of said rectangular panel portion and substantially medially scored for folding parallel to the edges of said rectangular panel portion, flap portions foldably joined to the edges of said panel portions along angled scores inclined inwardly from the rectangular panel portion of said medial score, the flap portions joined to the panel portions of one of said pairs extending angularly therefrom with an inclination directed away from said other pair of panel portions, and the panel portions of said one pair having end tabs hinged thereon at the edges thereof beyond said angled scores.

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