March 8, 1955 G. W. SCRIMSHAW 2,703,645

BOX, PACKAGE, AND WRAPPER

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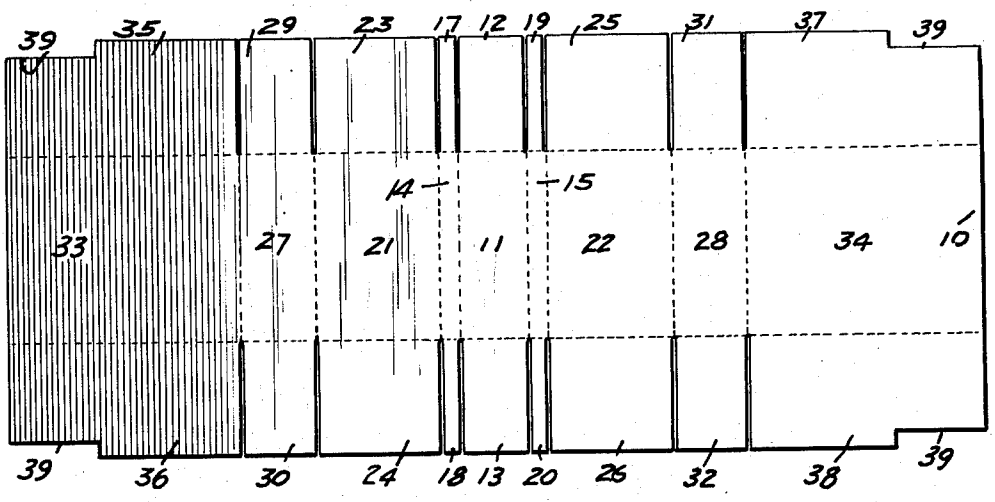


FIG. 1.

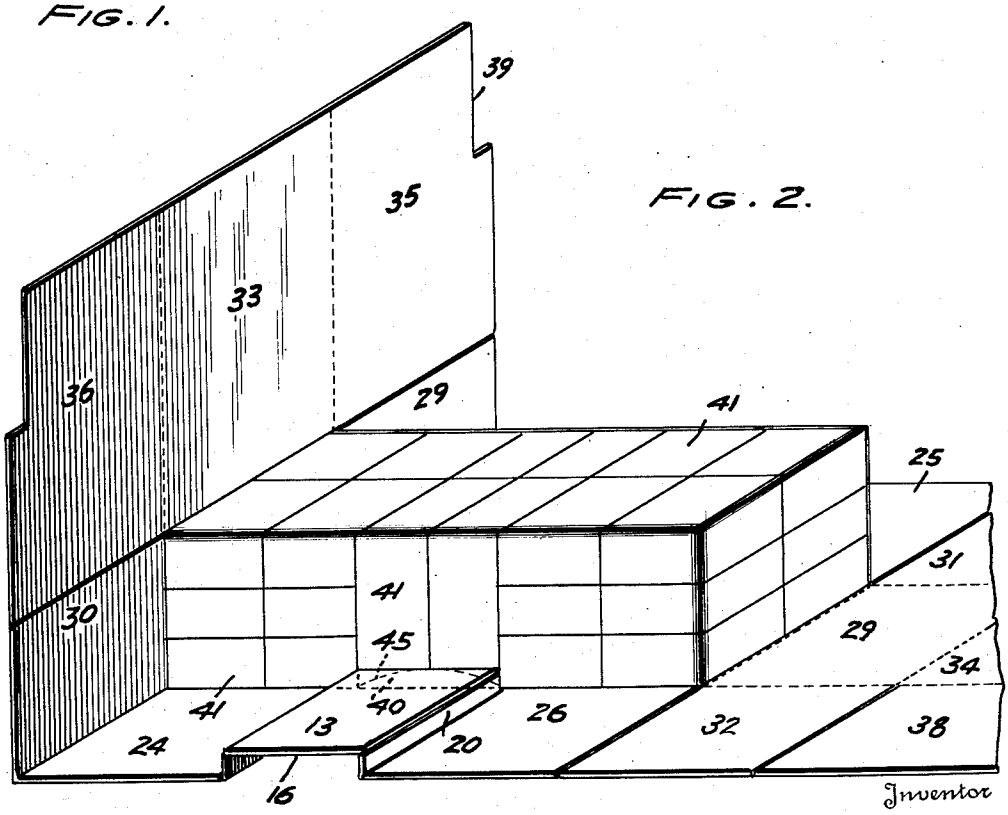


FIG. 2.

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FIG. 3.

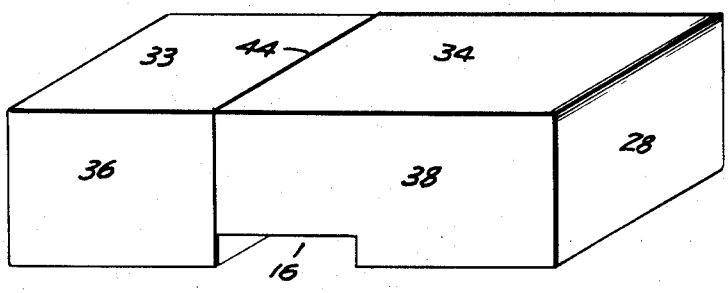
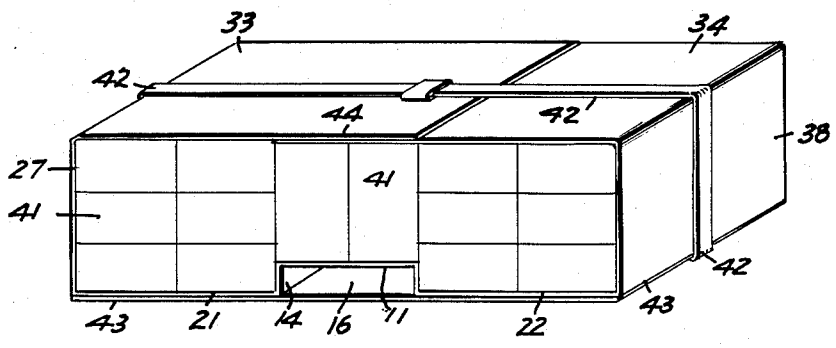


FIG. 4.



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FIG. 6

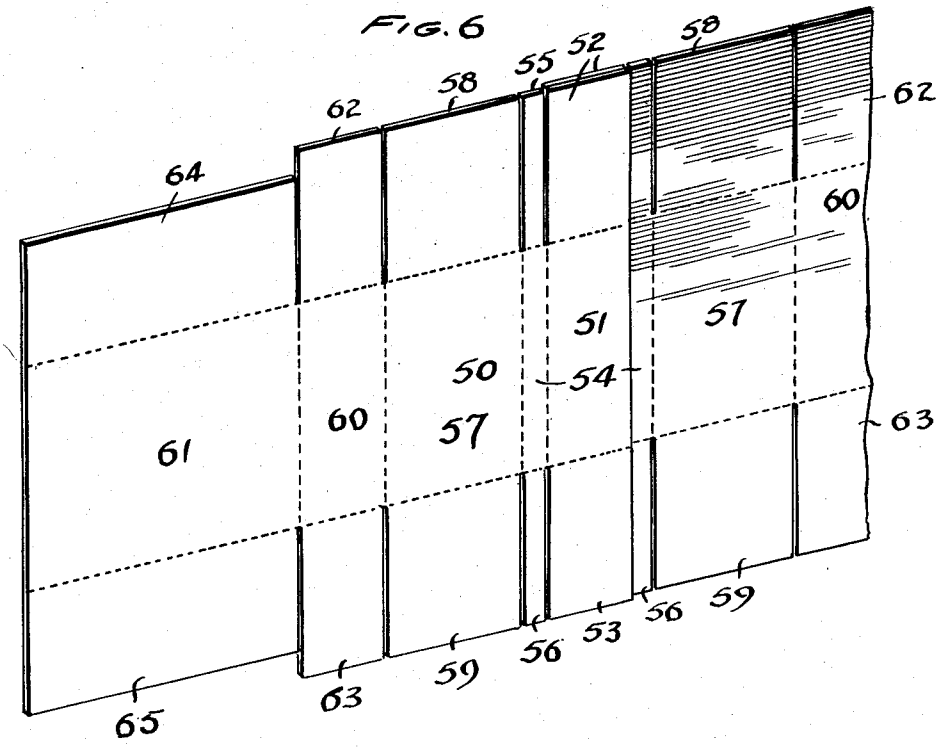
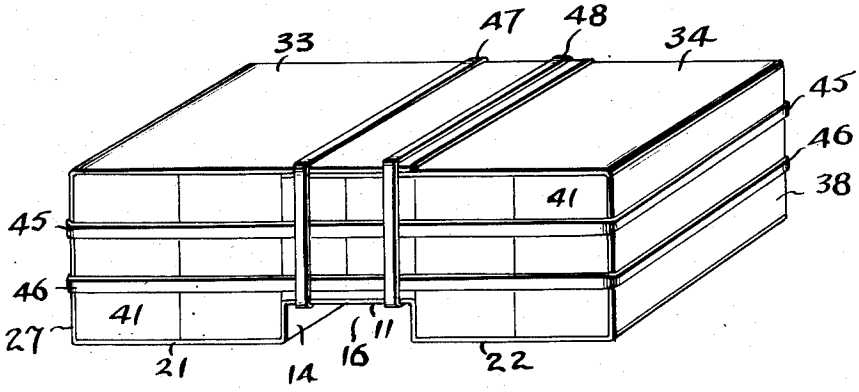


FIG. 5



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FIG. 7

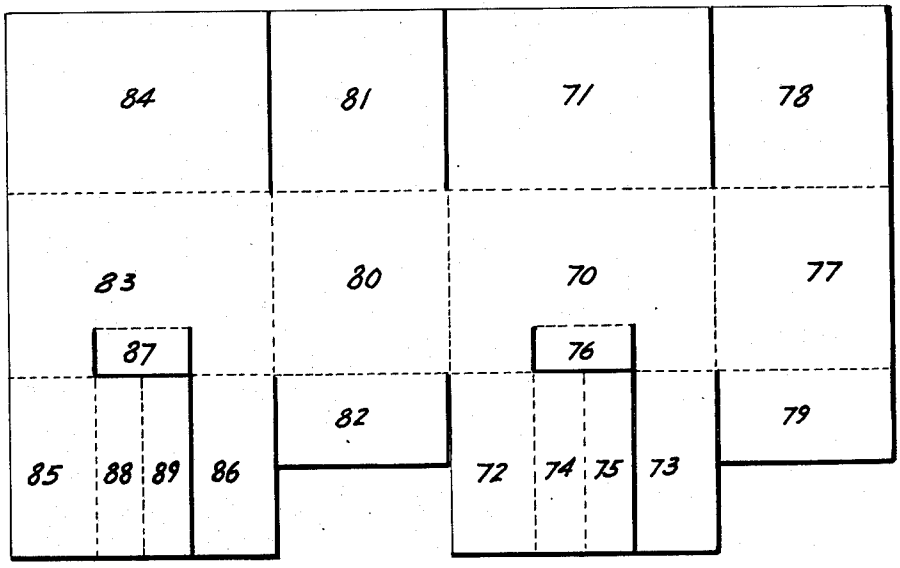
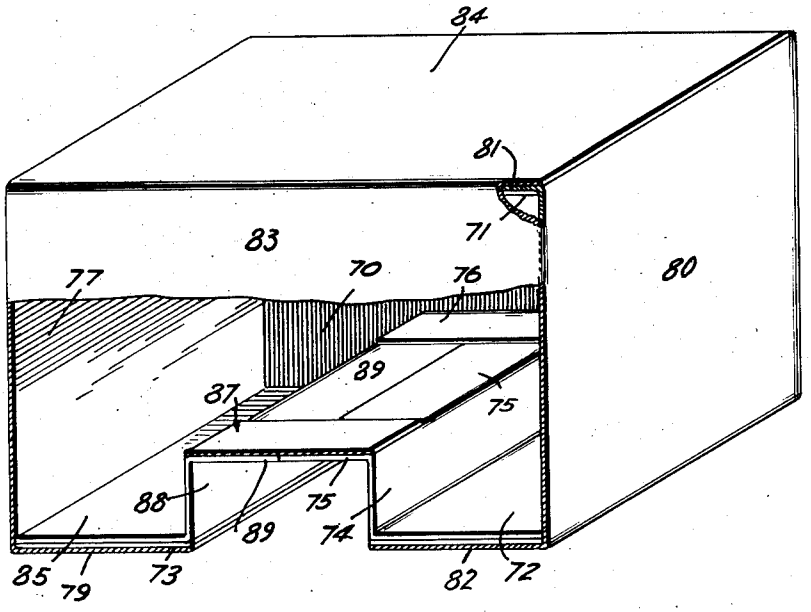


FIG. 8



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2,703,645

BOX, PACKAGE, AND WRAPPER

George W. Scrimshaw, San Antonio, Tex.

Application April 1, 1948, Serial No. 18,387

9 Claims. (Cl. 206—65)

The present invention concerns a box and/or package and a wrapper therefor.

It is an object of the invention to provide a less than carload lot unit of a plurality of standard individual cases or the like.

It is an object of the invention to provide a wrapper whereby a plurality of individual case lot packages such as cartons of canned fruit or the like may be handled as a unit. These units are of such size that they completely fill the floor space of a box car. That is, allowing for necessary clearance, the ratio of the floor area of a standard box car to the floor area occupied by the invention is substantially a whole number. Of course these units are also used when the entire car load is shipped to a single consignee.

It is an object of the invention to conserve shipping space.

It is an object of the invention to eliminate the need of shipping pallets and their return to the shipper.

It is an object of the invention to provide a unitary package of relatively large weight and size with a few inexpensive materials.

It is an object of the invention to provide a wrapper for heavy articles to facilitate handling in bulk.

It is an object of the invention to provide a wrapper and method of use which employs the weight of the package as a means to make the wrapper effective as a load bearing monocoque structure.

It is an object of the invention to provide a box for bulk handling and shipping of loose articles.

It has long been customary in the shipping and handling of large orders of case lots of canned or bottled goods to assemble the individual boxes or cases on a wooden pallet which is a platform raised three or four inches from the floor by two cross members or skids. The arm of a lift fork is run under the pallet between the cross-members and the whole lifted and run into a box car or truck where the load is lowered and the fork withdrawn. These pallets are expensive, require room and must be returned to the shipper. The present invention is intended to eliminate such pallets as well as to provide other distinct advantages in the handling of such goods.

Where the invention is employed as a box it is constructed from a blank and the top flaps left open. It can then be filled with loose articles such as grain, pecans, oranges, vegetables and loose goods generally. As the size of such a box increases it becomes more and more important that the weight distribution is even so that the walls may transmit the load and place the top members under stress in tension.

Throughout the specification and claims where reference is made to fastening flaps or panels together it is to be understood that stapling and gluing are intended to be employed interchangeably. In fact both are sometimes employed as where a section is glued and then stapled to insure that the parts are held in sealing contact until the glue has dried. In general where parts are described as glued together they may be stapled together instead.

In the drawings like numbers refer to like parts throughout.

Fig. 1 is a plan view of one form of wrapper blank.

Fig. 2 is a fragmentary perspective view of a package partially wrapped.

Fig. 3 is a perspective view of a completely wrapped unit package.

Fig. 4 is a perspective view of a modified form of package.

Fig. 5 shows a modification of the strapping of Figure 4.

Fig. 6 shows a modification of Fig. 1 in which complementary parts are fastened together to build up a whole sheet.

Fig. 7 is a plan view of a blank showing a modification of the invention to be used as a box.

Fig. 8 is a fragmentary perspective view of a box assembled from the blank of Fig. 7.

Blank **10** is preferably made of corrugated kraft board, solid fiber or the like, but may be made of any suitable sheet material including metal sheets, cloth, netting, wire-fencing, metal screening or any of the heavy papers. Laminated sheetings may be employed. The prime considerations are the requisite strength and cost.

Blank **10** comprises a central panel **11** with articulate flaps **12** and **13**. Central panel **11** is flanked on each side by narrow strips **14** and **15** which combine with panel **11** to form lift fork channel **16** of about two inches in height, more or less. Strips **14** and **15** are provided with articulate flaps **17**, **18** and **19**, **20** respectively. Flaps **17** through **20** inclusive may be eliminated if desired. Next are main support panels **21** and **22** with articulate flaps **23**, **24** and **25**, **26** respectively. Side panels **27** and **28** follow with their respective articulate flaps **29**, **30** and **31**, **32**. End panels **33** and **34** are quite wide, equalling the combined width of panels **11**, **14**, **21** and **27**. Panel **33** has articulate flaps **35** and **36** and panel **34** has flaps **37** and **38**. Flaps **35** through **38** inclusive have cutouts **39** in their outer corners, corresponding to channel **16**.

In Fig. 2 the blank **10** is shown placed over an assembly timber **40** so as to cause panels **11**, **14** and **15** to form channel **16**. Cases **41** of canned goods or the like are positioned somewhat as shown and the blank **10** wrapped around them to form the package shown in Fig. 3.

Flaps **12**, **13** and **23** through **26** inclusive may be made long enough to be folded over the top of cases **41** where an especially strong unit subject to repeated handling as for overseas shipment is required. In such case these flaps are longer than adjacent flaps **29** through **32** inclusive. Panel **33** is then folded over the top of cases **41** and extends over the cases above channel **16**. Where flaps **12**, **13**, **23** and **24** are made long enough to fold over the top of cases **41**, the panel **33** is glued to such folded over portions. Flap **29** is folded in and glued to flap **23**. Flap **30** is folded in and glued to flap **24**. In the same manner flaps **31** and **32** are glued to flaps **25** and **26** respectively. Flap **35** is glued to flaps **12** and **29** and flap **36** is glued to flaps **13** and **30**. It will be noted that flaps **24**, **30** and **36**, for example, are glued together to form a single laminated package wall of great strength.

In the same manner flaps **31** and **32** are glued to flaps **25** and **26** respectively. Flap **37** is glued to flaps **31** and **35** and flap **38** is glued to flaps **32** and **36** respectively. Panel **34** overlaps panel **33** above channel **16** and is glued to the panel. Where flaps **31** and **32** extend over the top of cases **41**, panel **34** is also glued to these flaps. Where flaps **17** through **20** are retained they are folded along the bottom of the cases **41**. It will be seen that the cutouts **39** frame the channel **16**. Timber **40** may then be pushed or pulled out and the arm of a lift fork inserted. The unit package may be hoisted as a whole, run into a truck or box car and deposited in position. The need of wooden pallets is eliminated. These require a space roughly equal to seven percent of the load they support. They are relatively expensive and must be returned to the shipper or a charge is made for them. The present package increases the space efficiency factor of a carrier and is cheaper than present methods. In addition the cases **41** are well protected. Where conditions make it desirable blank **10** may have a tar or latex coating on the inside between laminations. The corrugated member may be dipped or sprayed and the facing sheets

applied. This both strengthens the structure and makes it moisture resistant.

The above description presents one form the invention may take and is intended to be illustrative of one specific structure. It is not intended to be limiting. Other forms may be used without departing from the spirit of the invention.

For example, in the form shown in Fig. 4 all the flaps are eliminated. Where desirable steel banding such as shown at **42** may be used. While only one strap is shown several may be applied. A bottom sheet **43** may be glued to panels **21** and **22**, but this is usually necessary only in particular cases.

A glue joint between lapped members of corrugated board has great adhesive power and is able to withstand a large stress in shear due to tension loading. Such a condition exists at the top joint **44** in both Figs. 3 and 4. When a lift fork arm in channel **16** acts on panel **11** the cases **41** in the lobes, shown as a dozen on each side, press down on panels **21** and **22** under the action of gravity. Panels **21** and **22** initially rotate counterclockwise and clockwise respectively until the load is taken up by panels **27**, **28** and transferred to panels **33** and **34** which are placed under tension. The joint **44** assumes the load and the stress is distributed over the effective cross-sectional area of panels **33** and **34**. A study of the moments around an edge of channel **16** shows that the depth of the unit may be increased with a relatively smaller increase in the stress in panels **33** and **34** because the moment arm of the load remains the same while the effective moment arm of the panels **33** and **34** increases with the increased height of the unit. It follows that as the number of cases **41** is increased they should be placed one above the other rather than spread out laterally.

Timber or block **40** may have the form of a segment of a circle as shown at **45** in Fig. 2. In this case the panels **14** and **15** are eliminated and the central cases **41** are held in place in part by the panel **11** which is curved upwardly in this construction and in part by the side pressure of other cases **41**. Again the cases **41** above panels **21** and **22** may be arranged to support the central cases **41**.

Fig. 5 shows another method of strapping to prevent shifting of cases **41**. Normally cases **41** can be held in position by stapling or gluing. After the package of Fig. 4 is assembled a straight stapler may be used to anchor the cases **41** to the wrapper portions **21**, **22**, **27**, **33**, **34** and **38**. Where gluing is relied upon it is done as the panels are wrapped around the cases **41**. Where it is necessary to withstand rougher treatment straps **45** and **46** may be used as may also transverse straps **47** and **48**.

The blank of Fig. 1 can be made in two parts as shown in Fig. 6. Blank **50** has an end panel **51** with flaps **52** and **53**. Strip **54** has flaps **55** and **56** and joins panel **51** and panel **57**. Panel **57** is provided with flaps **58** and **59** and is joined in sequence to panels **60** and **61** which have flaps **62**, **63** and **64**, **65** respectively. Flaps **64** and **65** do not have an offset corresponding to **39** as the whole flap is narrower. This saves a cutting operation.

Two blanks **50** are glued and/or stapled together with panels **51** overlapping and the remaining panels extending in opposite directions. This structure is the counterpart of that shown in Fig. 1 and is used in the same manner. It presents the advantage of a smaller single blank and greater protection at the lifting channel **16**.

Fig. 7 shows the invention applied to a blank designed to be folded into box form. Side wall **70** is provided with a top flap **71** and the two bottom flaps **72** and **73**. Flap **72** has two integral flap extensions **74** and **75** hinged thereto. A tab **76** is hinged to wall **70** intermediate flaps **72** and **73**. End wall **77** is hinged to side wall **70** and has top and bottom flaps **78** and **79**. End wall **80** is hinged to the opposite side of wall **70** and has top and bottom flaps **81** and **82**. Side wall **83** is hinged to end wall **80** and arranged to align with the free edge of end wall **77**. Wall **83** has a top flap **84**, bottom flaps **85** and **86** and a small tab **87** between flaps **85** and **86**. Flap **85** has two integral flap extensions **88** and **89**.

In assembling the box, the free edges of panels **77** and **83** are placed together. The top is formed by overlapping flaps **71**, **78**, **81** and **84**. The bottom is formed by flaps **72**, **73**, **79**, **82**, **85** and **86**. A channel **90** is formed by tabs **76** and **87** which are turned in and flaps **74**, **75** and **88**, **89**. Flaps **74** and **88** form the side walls of channel **90** and flaps **75** and **89** form the roof of the channel. The ends of flaps **75** and **89** are glued or stapled to tabs **76** and **87**. Flaps **73**, **79** and **85** overlap and are glued or stapled together as are also flaps **72**, **82** and **86**. The assembled structure is shown in Fig. 8. The flaps may be folded in a different sequence without departing from the spirit of the invention. A corner flap may be added to the free edge of either panel **77** or **83** if greater strength is desired at this butt joint. Such a flap would be fastened to the inside of either panel **83** or **77** in the assembled box.

I claim:

1. A package comprising a plurality of individual cases having substantial weight and bulk, a wrapper member extending around said units and tightly holding them together, said wrapper member including first and second panels separated from one another by a dividing panel and integrally formed therewith, first and second flaps connected to said first and second panels, each of said first and second flaps including partial channel-forming flaps, said partial channel-forming flaps cooperating with one another in the package to produce a single channel along the lower part of said package and integrally formed with said member.

2. The combination set forth in claim 1, said wrapper member having overlapping integral upper panels and metal strap means surrounding said package and holding said upper panels tightly together in package forming relation.

3. The combination set forth in claim 1, said wrapper member having overlapping integral upper panels and means holding said upper panels tightly together in package forming relation.

4. The combination set forth in claim 3, said means holding said overlapping upper panels together comprising adhesive between adjacent surfaces thereof.

5. A package comprising a plurality of individual cases having substantial weight and bulk, a wrapper member extending around said units and tightly holding them together, said wrapper member including first and second panels separated from one another by a dividing panel, first and second flaps connected to said first and second panels, each of said first and second flaps including auxiliary flaps which are folded, in part, at right angles to said first and second flaps, and folded, in part parallel to said first and second flaps, said right angle-fold portions forming parallel sides of a channel and said parallel-fold portions forming the top of a channel in the package, said channel extending along the bottom of said package and being integrally formed with said wrapper.

6. In combination, a box, comprising first and second panels separated from one another by a dividing panel and integrally formed therewith, first and second flaps connected to said first and second panels, said flaps each including partial channel-forming flaps, portions of said partial channel flaps forming the sides of a channel and other portions the top of a channel, said channel being recessed from said first and second flaps and integrally formed therewith.

7. In combination, a box comprising first and second panels separated from one another by a dividing panel and integrally formed therewith, first and second flaps connected to said first and second panels, said flaps each including partial channel-forming flaps, said first and second panels also including third flaps connected thereto adjacent said partial channel-forming flaps, said third flaps covering a portion of each of said partial channel-forming flaps, portions of said partial channel flaps forming the sides of a channel and other portions the top of a channel, said channel being recessed from said first and second flaps and integrally formed therewith.

8. The box claimed in claim 7 in which said third flaps cover portions of said channel-forming flaps which form the top of said channel, and means affixing said third flaps to the portions of said channel-forming flaps covered thereby.

9. A unitary corrugated kraft board palette-forming wrapper including first and second panels separated from one another by a dividing panel and integrally formed therewith, first and second flaps connected to each said first and second panels, each of said first and second flaps comprising partial channel-forming flaps, said partial channel-forming flaps cooperating with one another to

produce palette-channel lift fork receiving means adjacent the bottom of a formed wrapper symmetrically positioned with respect to an axis thereof.

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