July 7, 1970 N. MACNEALE 3,519,125

TRAY FORMING BUNDLE WRAP

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Fig. 1

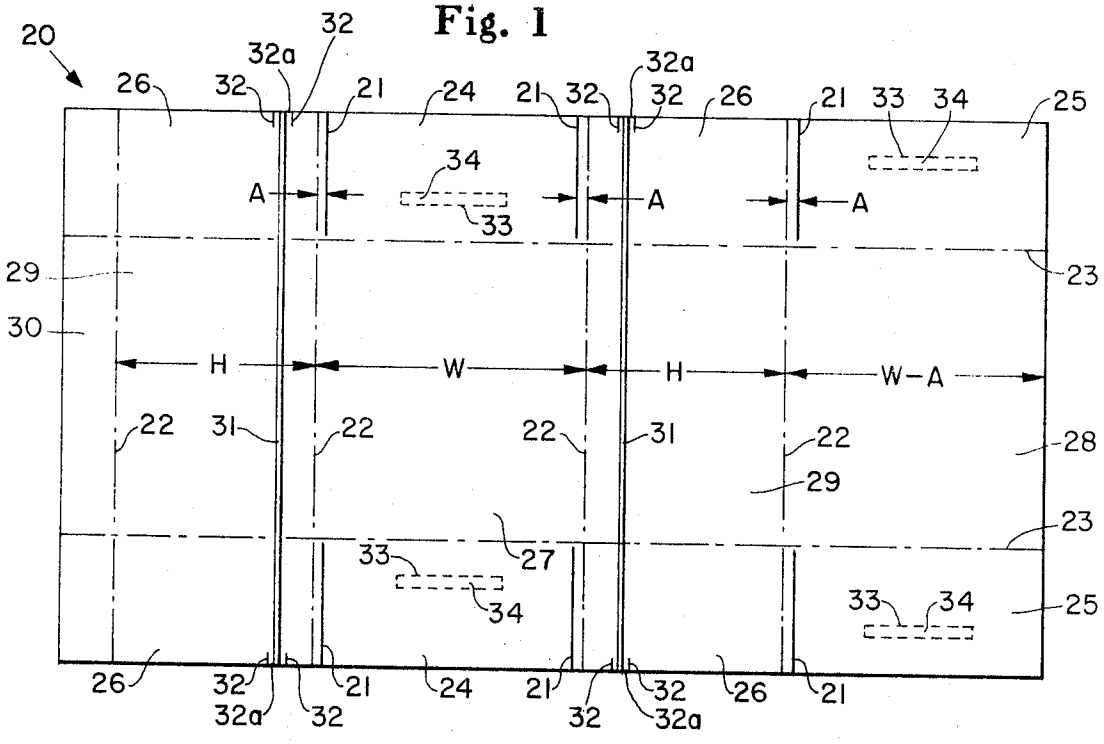
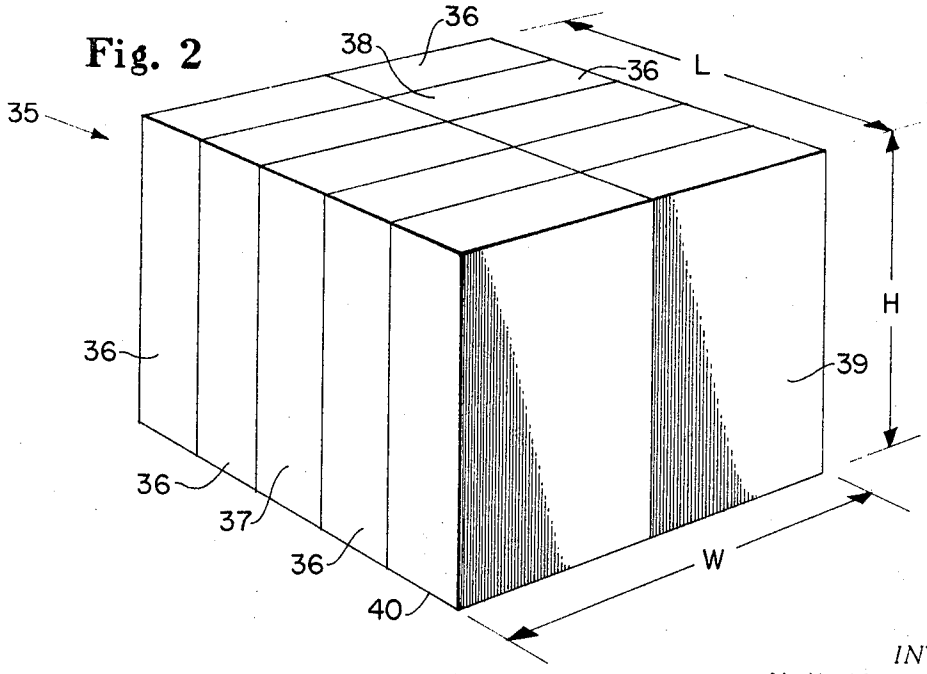


Fig. 2



INVENTOR.
Neil Macneale

BY Fredrick H. Braun
ATTORNEY

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Fig. 3

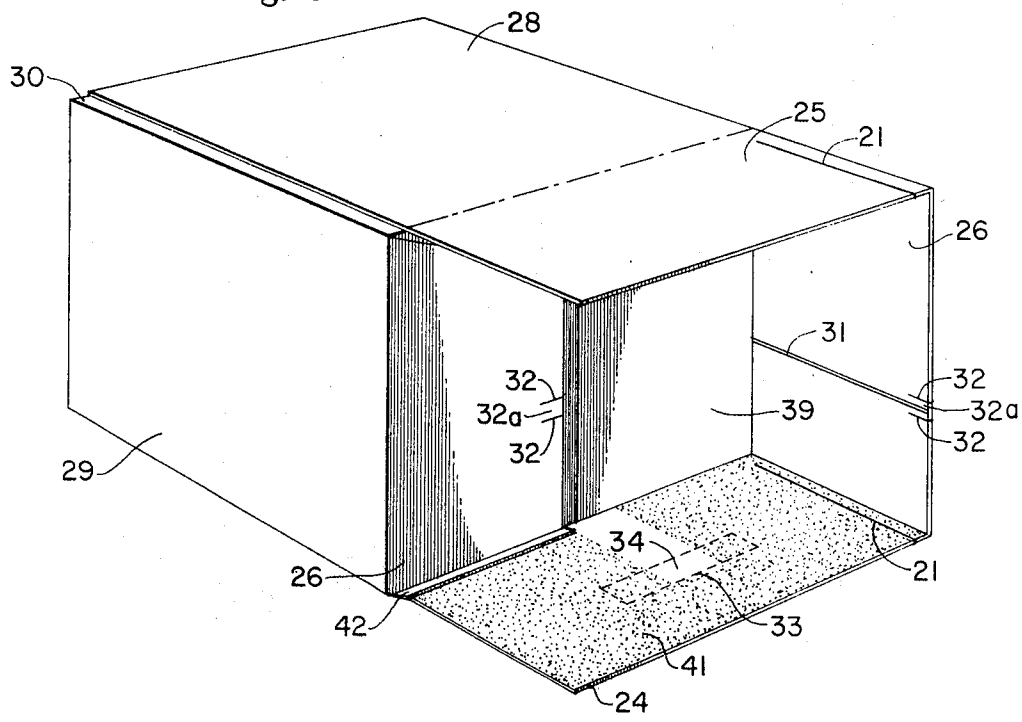
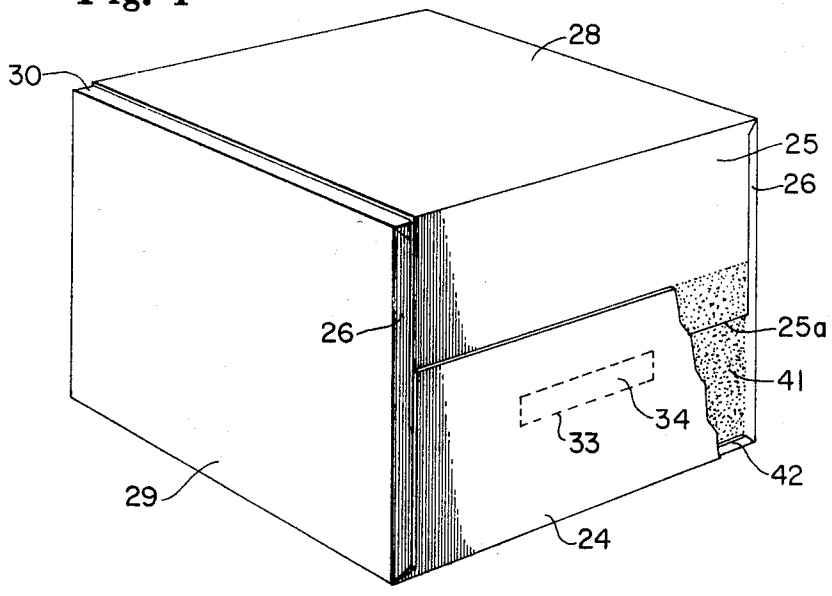


Fig. 4



INVENTOR.
Neil Macneale

BY Fredrick H. Braun

ATTORNEY

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Fig. 5

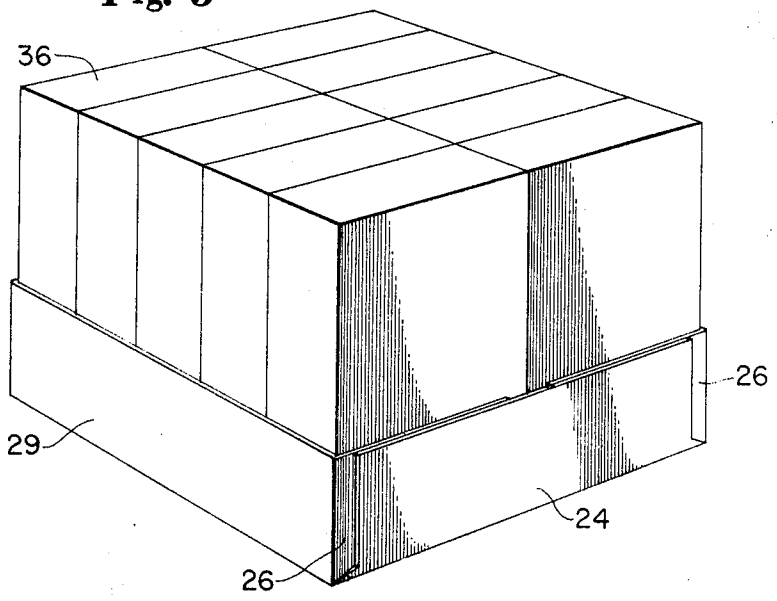
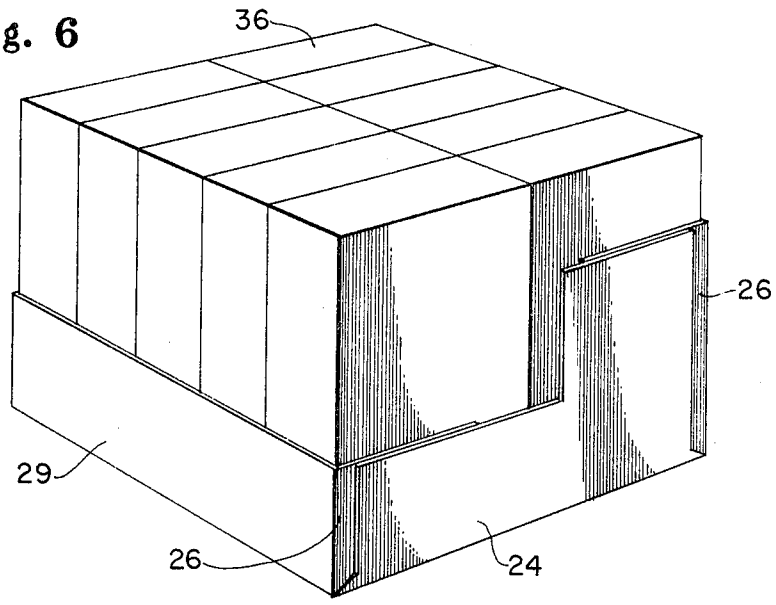


Fig. 6



INVENTOR.
Neil Macneale

BY Fredrick H. Braun

ATTORNEY

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TRAY FORMING BUNDLE WRAP

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Fig. 7

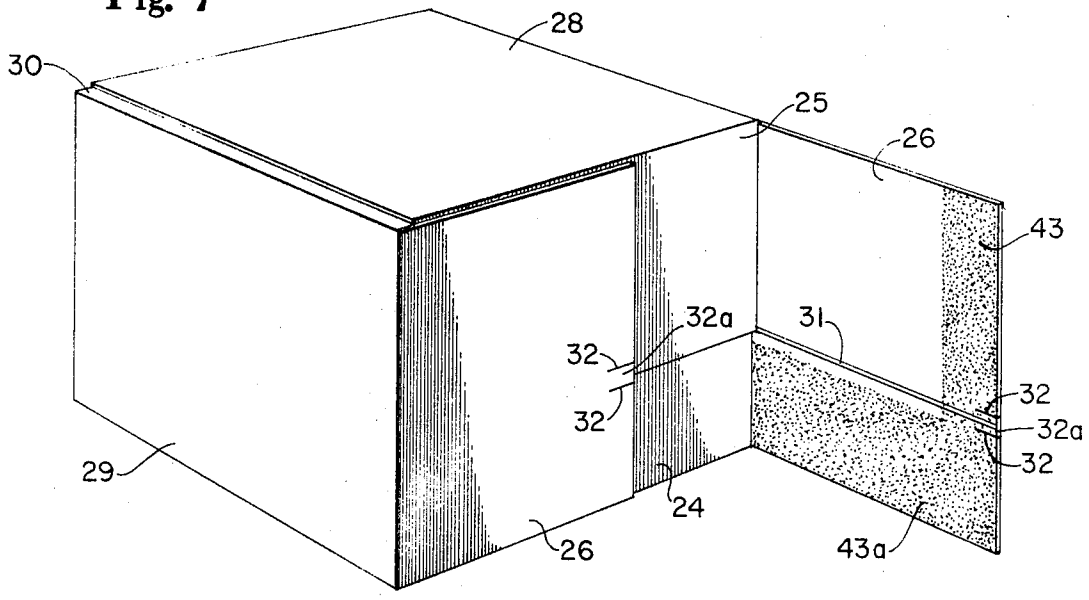
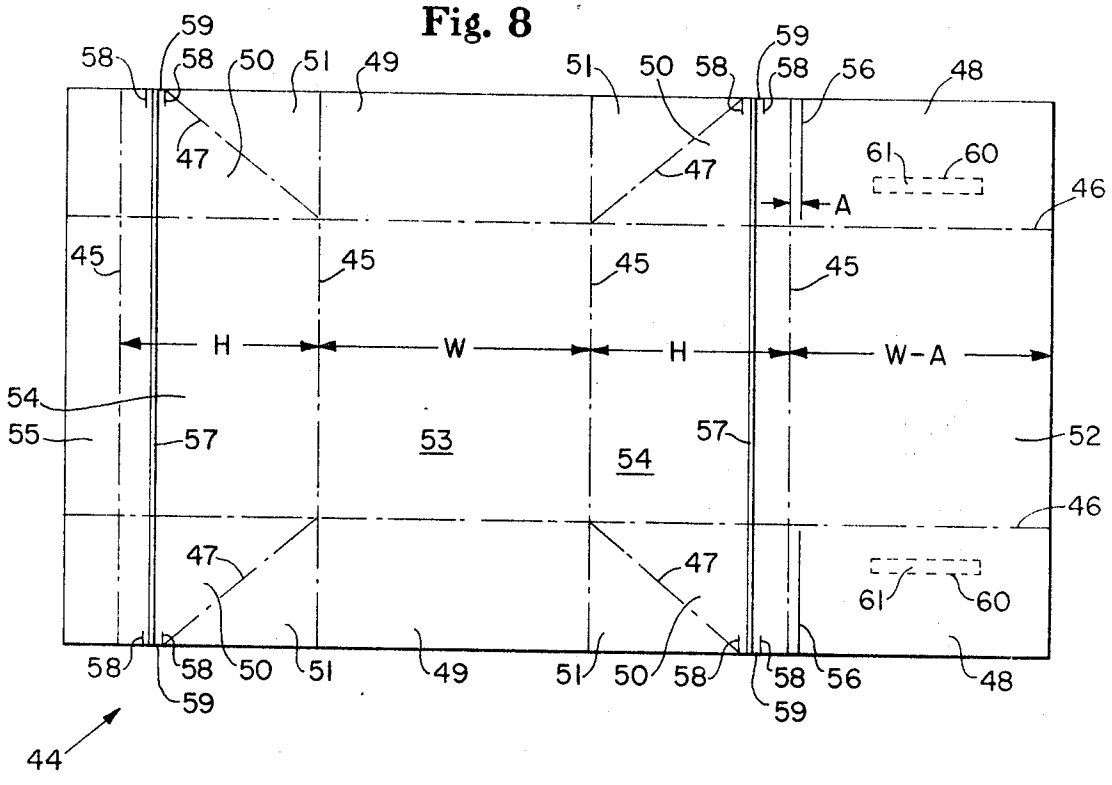


Fig. 8



INVENTOR.
Neil Macneale

BY Fredrick H. Braun
ATTORNEY

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Fig. 9

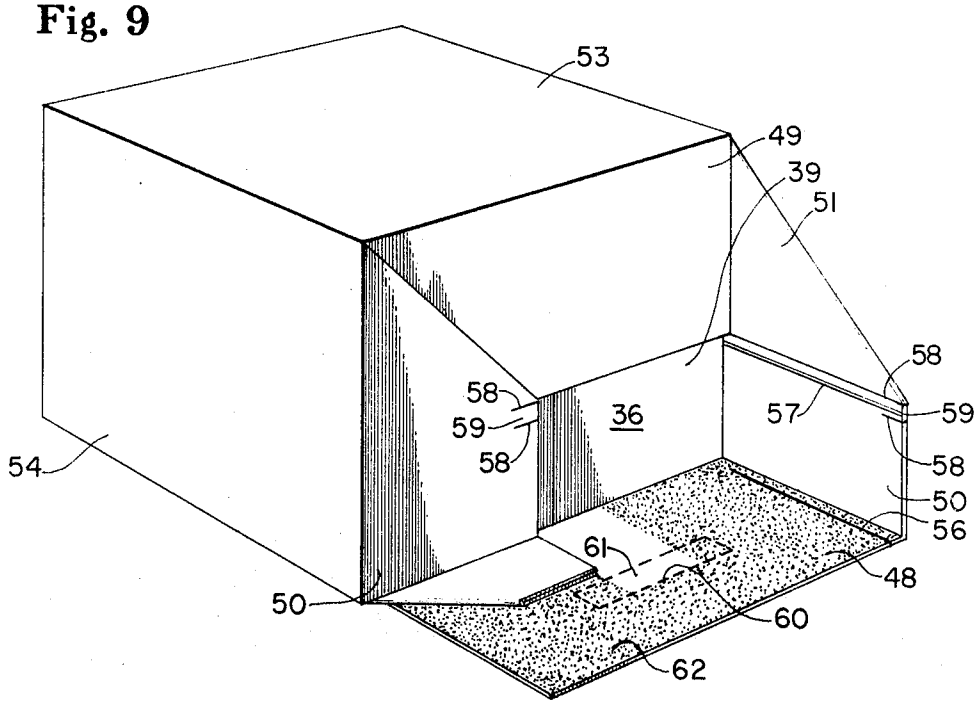
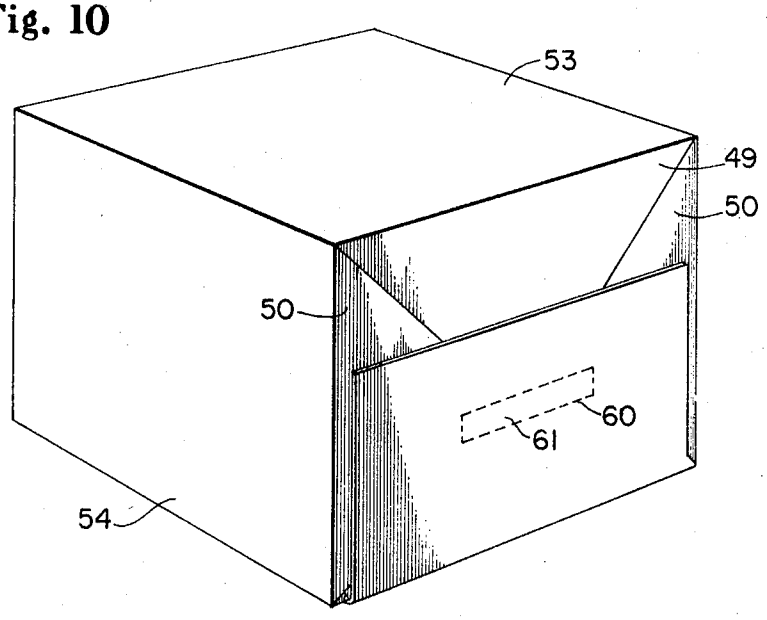


Fig. 10



INVENTOR.
Neil Macneale
BY
Fredrick H. Braun
ATTORNEY

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TRAY FORMING BUNDLE WRAP

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Fig. 11

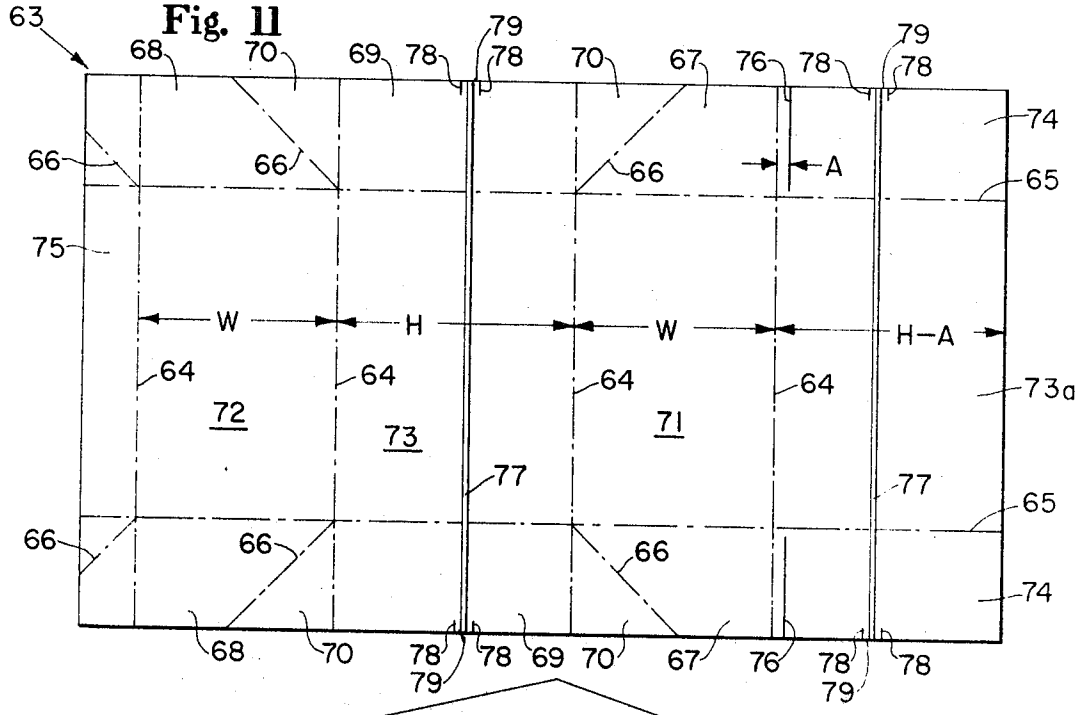


Fig. 12

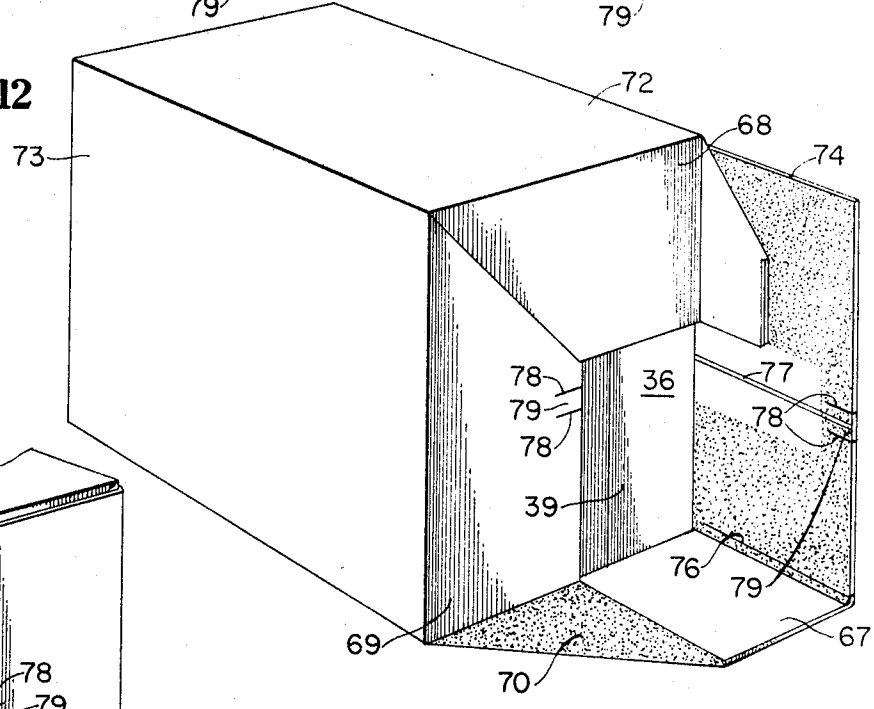
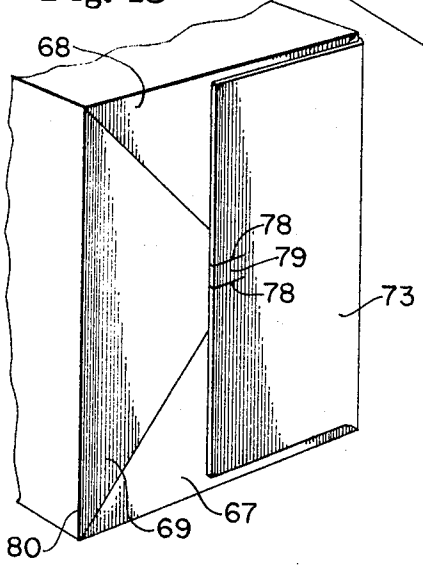


Fig. 13



INVENTOR.
Neil Macneale
BY Fredrick H. Braun
ATTORNEY

United States Patent Office 3,519,125 Patented July 7, 1970

3,519,125

TRAY FORMING BUNDLE WRAP

Neil Macneale, Wyoming, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

Filed June 25, 1968, Ser. No. 739,677
Int. Cl. B65d 71/00
U.S. Cl. 206—65 1 Claim

ABSTRACT OF THE DISCLOSURE

A bundle of packages contained within a taut overwrap of flexible paper is disclosed. Tear tapes are suitably located to permit opening the bundle into a low-walled tray. Several bundle end structures are disclosed which can be adapted to facilitate access to the ends of the tear tapes.

FIELD OF THE INVENTION

This invention relates to shipping bundles containing a plurality of packages and having a flexible overwrap, and more particularly to such shipping bundles which are adapted to be opened into a display tray.

BACKGROUND OF THE INVENTION

In packaging articles for shipment from factory or warehouse to sales outlets, the package for a plurality of such articles must possess sufficient structural integrity to withstand the abuse of handling during shipment. Additionally, it should possess a high strength to weight ratio and be available at low cost consistent with the above requisites.

A further objective of such packages is that they be adaptable to providing display of the packaged articles in retail outlets with minimal handling by retail sales personnel.

Where the individual articles to be packaged for shipment are rectangular packages, the prior art has provided a lightweight, high strength shipping bundle through the technique of compression packaging. This technique comprises arranging a plurality of rectangular packages in a rectangular array, applying compressive forces along one or more axes of the array and securing a flexible wrapper around the thusly assembled bundles. When the compressive forces are released from the array, the secured wrapper becomes taut holding the individual packages in the array in frictional engagement with each other, thereby maintaining package integrity. U.S. Pats. 3,263,807, Aug. 2, 1966 to L. Fingerhut and 3,354,600, Nov. 28, 1967 to W. Hoffman typically disclosed the compression bundling technique.

While providing a lightweight shipping bundle, the prior art goes only part way in solving the retail handling problem mentioned above. Means for exposing the top surfaces of packages in compression bundles to facilitate retail price marking are shown; however, the art fails to further develop means for adapting compression bundles to retail shelf display of the packaged articles; nor does it suggest that compression bundles may be so adapted.

The prior art relating to rigid corrugated shipping containers reveals a varity of means for adapting such rigid containers to retail display by cutting them into trays. These means are not, however, suggestive of the present development inasmuch as trays cut from rigid containers are in themselves structurally sound whereas a tray cut from a flexible wrapper is not structurally self-sufficient.

OBJECTS OF THE INVENTION

It is an object of this invention therefore to provide a package having a taut flexible wrap which opens conveniently into a low-walled tray for displaying the articles contained within the wrap for retail sale.

SUMMARY OF THE INVENTION

Briefly stated, this invention comprises an array of packages held in tight engagement with each other by a taut flexible overwrap, the overwrap containing two tear tapes, each extending partially across one end face of the bundle, across a side face of the bundle, and partially across the other end face of the bundle. The overwrap contains one of several end structures adapted to provide access to the tear tapes. A typical end structure comprises a pair of side flaps in contact with the package array, and top and bottom flaps containing areas removable for tear tape access overlying the side flaps.

BRIEF DESCRIPTION OF THE DRAWINGS

While the specification concludes with claims particularly pointing out and distinctly claiming the invention, it is believed the invention will be better understood by reference to the following explanation and accompanying drawings in which:

FIG. 1 is a plan view of one embodiment of a wrapper constructed in accordance with the present invention;

FIG. 2 is a perspective view of a rectangular array of articles to be packaged;

FIG. 3 is a perspective view showing the wrapper of FIG. 1 partially secured around the array of FIG. 2;

FIG. 4 is a partially fragmented perspective view showing the wrapper of FIG. 1 fully secured around the array of FIG. 2 to form a shipping bundle;

FIG. 5 is a perspective view of the bundle of FIG. 4 after it has been opened into a tray;

FIG. 6 is a perspective view of an opened bundle having a wrapper which is a modification of that shown in FIG. 1;

FIG. 7 is a perspective view of a partially closed bundle having a wrapper which is a further modification of that shown in FIG. 1;

FIG. 8 is a plan view of another embodiment of a wrapper adapted to be used in the present invention;

FIG. 9 is a perspective view showing the wrapper of FIG. 8 partially secured around the array of FIG. 2;

FIG. 10 is a perspective view of a fully secured bundle having the wrapper of FIG. 8;

FIG. 11 is a plan view of a still further embodiment of a wrapper for the present invention;

FIG. 12 is a perspective view showing the wrapper of FIG. 11 partially secured around the array of FIG. 2; and

FIG. 13 is a fragmented perspective view of a fully secured bundle having the wrapper of FIG. 11.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, FIGS. 1 and 3–5 illustrate one embodiment of the present invention. FIG. 1 illustrates a wrapper **20** which is made of a flexible material, typically kraft paper having a weight in the range from 40 to 90 pounds per thousand square feet. The wrapper **20** has a length sufficient to encompass the girth of the bundle to be wrapped and overlap for gluing, and has a width sufficient to cover the length of the bundle to be wrapped and provide overlapping end folds.

For purposes of illustration, chain lines **22** and **23** are shown on the wrapper **20** (these chain lines **22** and **23** do not appear as physical features on the actual wrapper

prior to folding) to define bottom flaps **24**, top flaps **25**, side flaps **26**; bottom panel **27**, top panel **28**, side panels **29**, and strip **30**. The lines **22** and **23** are laid out so that side panels **29** have a size equal to that of the vertical side of the bundle to be wrapped, bottom panel **27** has a size equal to the size of the bottom surface of the bundle to be wrapped, top panel **28** has a width (designated W–A and hereinafter explained) slightly less than the width of the top surface of the bundle to be wrapped, and bottom flaps **24**, top flaps **25**, and side flaps **26** all have a dimension in the direction parallel to lines **22** which ranges from slightly over one-half the dimension H of the panels **29** to the full width thereof. (The dimension H corresponds to vertical dimension H of the package array **35** shown in FIG. 2 and hereinafter described.) In the preferred variant of this embodiment of the invention, however, the flap dimension parallel to the lines **22** will range from slightly over one-half H to slightly less than H minus the desired tray sidewall height.

Six cuts **21** are provided on the wrapper **20**, three extending from each of two opposite edges thereof. The cuts **21** are located on the bottom flaps **24** and top flaps **25** and are displaced a small distance (designated A) from the lines **22** defining the mentioned flaps. The length of the cuts **21** is slightly less than the distance from the edges of the wrapper **20** to the lines **23**. For example, in a wrapper for bundles of detergent cartons in which the dimensions H and W are 11¼" and 15¼", respectively, the cuts **21** will fall from about one-half to about two inches short of intersecting lines **23** and will be offset from the lines **22** a distance of from about one-half to about two inches.

Two cuts similar to cuts **21** could be placed in the strip **30** a distance A from the line **22**. The same function is achieved, however, by making the top panel **28** and end flaps **25** narrower by dimension A than the horizontal dimension W (shown and described hereafter in connection with FIG. 2) of the bundle to be wrapped and gluing the strip **30** to the top panel **28** only in the area contained between lines **23**.

Two tear tapes **31** are adhered or otherwise fastened to the wrapper **20** so as to extend across side flaps **26** and side panels **29**. The tear tapes **31** are spaced from the bottom panel **27** distances equal to the desired height of the tray formed by opening the bundle. The tear tapes **31** can be spaced equal distances from the bottom panel **27** to provide for a tray of uniform depth as shown in FIG. 5, or alternatively, can be unequal distances from bottom panel **27** to provide a tray such as that shown in FIG. 6 having a low wall along the one side to facilitate package display and a high wall along the other side to provide integrity and handling ease for the opened bundle. (The advantages of the latter configuration are hereinafter explained in connection with the description of FIG. 6.) As an example of the distance of the tear tapes **31** from the bottom panel **27**, wrappers for detergent carton bundles dimensioned as described above can have tear tapes **31** each located two inches from the bottom panel **27** where a tray of uniform height is desired, and can have one tear tape **31** located 6 inches from the bottom panel **27** when a tray having two different side wall dimensions is desired.

Though not necessary, it is preferred that the tear tapes **31** parallel the grain of the paper to facilitate tearing thereof. As used herein, the grain direction of the paper corresponds to that direction on the paper which paralleled the length of the papermaking machine on which it was formed.

A pair of cuts **32** is provided at each end of each tear tape **31** to define pull tabs **32***a* for the tear tapes **31**. The cuts **32** must be of sufficient length to enable a person to grasp the area contained between them with his fingers. Typically, this length will range from about ¼ inch to about 1 inch.

Materials from which the tear tapes can be made include flat woven fiber strips of cotton or linen, typically ⅛–3/16" wide, untwisted monofilaments of a non-wicking, strong plastic such as Dacron, and pressure sensitive rayon filament.

Perforations **33** defining removable areas **34** are located on the bottom flaps **24** and top flaps **25** to provide access to the pull tabs **32***a* and are located to overlie the pull tabs **32***a* when the bundle is secured. In the preferred variant of this embodiment (i.e., that in which the tear tapes **31** are located equal distances from the bottom panel **27** and the length of the flaps **24**, **25** and **26** is less than H minus the desired tray sidewall height), only the bottom flaps **24** need contain the perforations **33**.

FIG. 2 illustrates the package array **35** comprising a group of rectangular packages **36** rectangularly arranged adjacent each other in a plurality of rows. As few as two packages **36** could form such an array **35** although the advantages of this invention are most readily realized when the array **35** contains a larger number of packages **36**, for example, six or more. In FIG. 2, the number **37** designates the side surface of the array **35**, the number **38** designates the top surface thereof, the number **39** designates the end surfaces thereof, and the number **40** designates the bottom surface thereof.

The bundle can be assembled by placing the package array **35** on the wrapper **20** so that its bottom surface **40** is coincident with the bottom panel **27** of the wrapper **20**, then folding the wrapper **20** at lines **22** to draw the side panels **29** into superposition with the side surfaces **37** and at the same time drawing the wrapper **20** taut. The top panel **28** and strip **30** are then folded over on lines **22** to cover top surfaces **38** of the array **35**. The array **35** is then compressed in the direction of dimension L of FIG. 2 (or in both the directions of dimensions L and W of FIG. 2), which corresponds with the narrow dimension of the individual packages **36** in the array **35**, while maintaining the wrapper **20** taut. The top panel **28** is adhesively secured to the strip **30** whereupon the bundle is completed by folding and gluing the flaps **24**, **25** and **26** in proper sequence (to be described) to complete the bundle ends. The compressive forces are then removed from the bundle, whereupon the stress in the packages **36** is partially taken up by the wrapper **20** which remains taut and maintains the array **35** in a slightly compressed state.

The forces which are applied to the array **35** are applied uniformly along its outer surfaces and are of sufficient magnitude to permit firm rigid contact between the packages **36** and to slightly deform the packages **36** to a point not exceeding their elastic limit. The strain to which the packages **36** are subjected can be, for example, .035 inch per inch of package dimension in the direction of the compressive forces.

The bundle ends can have one of several structures. FIG. 3 illustrates one such end structure in a partially closed position. In this particular structure, which accords with the preferred variant of the embodiment of the invention which utilizes the FIG. 1 wrapper **20**, side flaps **26** are folded against the end surfaces **39** of the array **35**, the top flaps **25** are then folded down to overlie the side flaps **26**, and the bottom flaps **24** are folded up last and are adhesively secured to the superposed portions of the top flaps **25** and side flaps **26** with a suitable commercially available adhesive applied to the areas **41** on the inner surfaces of bottom flaps **24**. Optionally, glue may be similarly applied to top flap **25** to adhere top flap **25** to side flaps **26**.

FIG. 4 illustrates a fully secured bundle which is the preferred variant of this embodiment and which has the end structure described above. The bottom flap **24** is partially cut away to illustrate the relative locations of the distal end **25***a* of the top flap **25**, the removable area **34** (which is vertically located such that it overlies the pull tabs **32***a* of the tear tapes **31**), and the glue areas **41**. In this preferred variant, the top flap **25** does not extend down to the plane of tear tapes **31**; hence, removable areas **34** need be located only on the bottom flaps **24** and the

tear tapes **31** in the bundle end portion need only cut through the side flaps **26** and bottom flaps **24** when the bundle is opened and a tray is formed. The glue areas **41** which join the bottom flap **24** to the side flaps **26** are necessary to maintain assembly of the tray formed after pulling the tear tapes **31** and removing the upper portion of the wrapper **20**.

It will be noted in FIGS. 3 and 4 that a short double folded gusset **42** exists at the corners of the bundle end face. This results from the combination of offsetting the cuts **21** from lines **22** on the wrapper **20** and spacing the end of cuts **21** outwardly from the lines **23**. The resulting short double fold **42** adds strength to the wrapper at the bundle corners by discouraging tearing at the ends of the cuts **21**. The wrapper could, however, be made with the cuts **21** coincident with lines **22** and extending to lines **23**, although some sacrifice in corner strength would be made.

Other variants of the embodiment which utilize the FIG. 1 wrapper **20** and have the end structures of FIG. 4 (or alternatively, an end structure in which the bottom flap **24** overlies the side flaps **26** and the top flap **25** overlies the bottom flap **24**) can have a wrapper **20** with flaps **24**, **25** and **26** whose length equals or approaches dimension H of side panel **29**, and/or whose tear tapes **31** are located so that, in the assembled bundle, both bottom flaps **24** and top flaps **25** overlap the plane of the tear tapes **31**. In such a case, both bottom flaps **24** and top flaps **25** must contain removable areas **34** to provide access to the pull tabs **32***a*, and the tear tapes must cut side flaps **26**, top flaps **25** and bottom flaps **24** to open the bundle. When one of these variants is used, bundle opening can be facilitated by providing a line of weakness, such as a perforation, on the flap immediately overlying the side flaps **26**, which line of weakness overlies the tear tape **31** location.

A bundle having the end structure illustrated by FIGS. 3 and 4 is openable into a tray by removing the area **34** at the perforations **33** from the bottom flap in the preferred variant (and from both the bottom flap **24** and the top flap **25** in all other variants), grasping the pull tabs **32***a* and pulling the tear tapes **31** through wrapper **20**, and removing the thusly separated upper portion of the wrapper **20** to expose the packages **36**. FIG. 5 illustrates the bundle of FIG. 4 after it has been opened into a tray. The tray material remains under stress after the upper portion of the wrapper **20** has been removed as described above, thereby maintaining the packages **36** in close frictional engagement with each other and permitting handling the trays containing the packages **36**, price marking the packages **36**, and stacking the trays containing the packages **36** for retail sales display.

FIG. 6 illustrates an opened bundle formed from a secured bundle having the wrapper **20** of FIG. 1 in which the tear tapes **31** are located unequal distances from bottom panel **27**. When the opened bundle shown is handled, it can be carried by tilting it so the bottom of the low-walled side is above the bottom of the high-walled side thereby providing a substantial cradling region which will assure that the packages **36** will remain in the tray. When the opened bundle shown is stacked for retail sales display, the low-walled side can be exposed to the customer's view, thereby providing a maximum frontal exposure of the individual packages **36**.

FIG. 7 illustrates another embodiment of the invention which can be formed by securing a modification of the wrapper **20** of FIG. 1 around the array **35** of FIG. 2. The modifications to the wrapper **20** made to achieve this embodiment consists of (1) placing the cuts **21** shown in FIG. 1 coincident with lines **22** and extending them to the lines **23**, (2) providing two additional cuts similar to cuts **21** coincident with the line **22** which defines strip **30** and extending from the edge of wrapper **20** to lines **23**, and (3) omitting the perforations **33** from the wrapper **20**. In order to assure overlap of the side flaps **26**, it is necessary that the distance from the lines **23** to the edges of the wrapper **20** exceed one-half the width W (see FIG. 2) of the array **35** to be wrapped.

The end structures of the FIG. 7 bundle each comprise bottom flap **24** overlying the array **35** end surface **39**, the top flap **25** overlying the bottom flap **24** (alternatively, bottom flap **24** could overlie top flap **25**), and side flaps **26** overlying both bottom flaps **24** and top flaps **25**. One of the side flaps has a glue area **43** at which it is adhesively secured to the other side flap **26**, and each side flap **26** has a glue area **43***a* at which it is secured to bottom flap **24** below the plane of the tear tapes **31**.

A bundle having the end structure illustrated by FIG. 7 is opened into a tray by grasping the pull tab **32***a* on the outermost side flap **26** and pulling the first tear tape **31** through the wrapper **20**, grasping thusly exposed pull tab **32***a* on the innermost side flap **26** and pulling the second tear tape **31** through the wrapper **20**, and removing the thusly separated upper portion of the wrapper **20** to expose the packages **36**.

FIGS. 8–10 illustrate still another embodiment of the present invention. FIG. 8 shows a wrapper **44**, which can be made of materials similar to those cited for wrapper **20** in FIG. 1. Chain lines **45** and **46** and oblique chain lines **47** are shown (for purposes of illustration only; these lines do not appear as physical features of the actual unfolded wrapper) to define the bottom flaps **48**, top flaps **49**, side flaps **50**, gussets **51**, bottom panel **52**, top panel **53**, side panels **54** and strip **55**. The lines **45** and **46** are laid out so that side panels **54** have a size equal to that of the side surfaces **37** of the array **35**, top panel **53** has a size equal to that of the top surface **38** of the array **35**, bottom panel **52** has a width (designated W–A) equal to that of the bottom surface of the array **35**, minus the offset A of the cuts **56** (hereinafter described), and bottom flaps **49**, and side flaps **50** all have a dimension in the direction of lines **45** which ranges from slightly over one-half the dimension H of panels **54** to slightly less than H minus the desired tray sidewall height. The wrapper **44** has a length sufficient to encompass the girth of the array **35** and overlap for gluing, and includes in its length the strip **55** whose dimension in the direction of lines **46** exceeds the dimension A (hereinafter explained) by the gluing overlap desired in the secured bundle.

Two cuts **56** are provided on the wrapper **44**, one on each bottom flap **48**. The cuts **56** are displaced on the bottom flaps **48** from the line **45** a small distance (designated A) which, for example, in a wrapper for the described bundle of detergent cartons can range from about ½ to about 2 inches. The cuts **56** extend from the outer edges of the top flaps **49** to a point short of the lines **46**. The distance between lines **46** and the termini of the cuts **56**, can, for example, range from about ½ to about 2 inches in a wrapper for the described bundle of detergent cartons.

Two tear tapes **57** are fastened to the wrapper **44** and extend across side flaps **50** and side panels **54**. The tear tapes **57** (which can be made from the same materials as tear tape **31** described in connection with the wrapper **20** of FIG. 1) are spaced from the top panel **53** distances equal to dimension H minus the desired height of the tray sidewalls and are located exteriorly of the outer ends of the oblique lines **47**, which extend from the interior corners of the top flaps **49**. A pair of cuts **58** is provided at each end of each tear tape **57** to define pull taps **59** for the tear tapes **57**, the cuts **58** havng dimensions as described for cuts **32** shown in FIG. 1.

Perforations **60** defining removable areas **61** are located on the bottom flaps **48** to provide access to the pull taps **59** and are located to overlie the pull tabs **59** when the bundle is secured.

The bundle can be assembled by placing the package array **35** on the wrapper **44** so that its top surface **38** is coincident with top panel **53** of the wrapper **44**, then folding the wrapper **44** at lines **45** to draw the side panels **54** into superposition with the side surfaces **37** and at

the same time drawing the wrapper **44** taut. The bottom panel **52** and strip **55** are then folded over on lines **45** to cover bottom surface **40** of the array **35**. The array **35** is then compressed in the direction of dimension L of FIG. 2 (or in both the directions L and W of FIG. 2), which corresponds to the narrow dimension of the individual packages **36** in the array **35**, while maintaining the wrapper **44** taut. The bottom panel **52** is adhesively secured to the strip **55** whereupon the bundle is completed by folding and gluing the flaps **48**, **49** and **50** in proper sequence (to be described) to complete the bundle ends. The compressive forces are then removed from the bundle, whereupon the stress in the packages **36** is partially taken up by the wrapper **44** which remains taut and maintains the array **35** in a slightly compressed state.

The bundle end structure is illustrated in a partially closed position by FIG. 9. The top flap **49** is folded down against the end surface **39** of the array **35** to shape the gussets **51** on the lines **47** described in FIG. 8. The side flaps are then folded over against the top flaps **49**, and the bottom flaps **48** are folded up last and are adhesively secured to the superposed portions of both the side flaps **50** and top flaps **49**. The glue areas **62** are located as shown in FIG. 9 to leave the area on bottom flap **48** which overlies the exposed portion of the end surface **39** of array **35** free of adhesive.

FIG. 10 shows this second embodiment in the fully secured position. The bundle of FIG. 10 is opened into a tray by removing the area **61** at the perforations **60**, grasping the pull tabs **59** and pulling the tear tapes **57** through the wrapper **44** and removing the thusly separated upper portion of the wrapper **44** to expose the packages **36** contained therein.

FIGS. 11–13 illustrate a further embodiment of the present invention. FIG. 11 shows a wrapper **63** which can be made of materials similar to those cited for wrapper **20** in FIG. 1. Chain lines **64** and **65** and oblique chain lines **66** are shown (for purposes of illustration only; these lines do not appear as physical features of the actual unfolded wrapper) to define the bottom flaps **67**, top flaps **68**, side flaps **69**, gussets **70**, bottom panel **71**, top panel **72**, side panels **73** and **73***a*, side flaps **74** and strip **75**. The lines **64** and **65** are laid out so that bottom panel **71** has a size equal to that of the array **35** bottom surface **40** (see FIG. 2), top panel **72** has a size equal to that of array top surface **38**, side flaps **74** and the side panel **73***a* have a width (designated H-A) equal to that of the array **35** side surface **37** minus the offset A of the cuts **76** (hereinafter described), the side panel **73** has a size equal to that of the array side surface **37**, and, to provide overlap of side flaps **69** and **74** while precluding overlap of top flaps **68** and bottom flaps **67**, flaps **67**, **68**, **69** and **74** all have a dimension in the direction parallel to lines **64** which ranges from slightly over one-half the dimension W of top panel **72** and bottom panel **71** to slightly less than the dimension H of side panel **73**. The wrapper **63** has a length sufficient to encompass the girth of the array **35** and overlap for gluing, and includes in its length the strip **75** whose dimension in the direction of lines **65** exceeds the dimension A (hereinafter defined) by the gluing overlap desired in the secured bundle.

Two cuts **76** are provided on the wrapper **63**, one on each side flap **74**. The cuts **76** are displaced on the side flaps **74** from the line **64** a small distance (designated A) which, for example, in a wrapper for the described bundle of detergent cartons can range from about ½ to about 2 inches. The cuts **76** extend from the outer edge of the side flaps **74** to a point short of the lines **65**. The distance between the lines **65** and the termini of the cuts **76** can, for example, range from about ½ to about 2 inches in a wrapper for the said bundle of detergent cartons.

Two tear tapes **77** are fastened to the wrapper **63** and extend in one instance, across side flaps **69** and side panel **73**, and in the other instance, across side flaps **74** and side panel **73***a*. The tear tapes **77** (which can be made from the materials described for tear tape **31** in the embodiment which utilizes the FIG. 1 wrapper **20**) are located laterally central of the side panels **73**, and a distance equal to ½H from the line **64** on the side panel **73***a*, respectively. A pair of cuts **78** is provided at each end of each tear tape **77** to define pull tabs **79**, the cuts **78** having dimensions as described for cuts **32** in connection with FIG. 1.

The bundle of this embodiment can be assembled by placing the array **35** on the wrapper **63** with one of its side surfaces **37** coincident with the wrapper side panel **73**, then folding the wrapper **63** at lines **64** to draw the top panel **72** and bottom panel **71** into superposition with the top surface **38** and bottom surface **40**, respectively, and at the same time drawing the wrapper **63** taut. The side panel **73***a* and strip **75** are then folded over on lines **64** to cover side surface **37** of the array **35**. The array **35** is then compressed in the direction of dimension L of FIG. 2 (or in both the directions L and W of FIG. 2), which corresponds to the narrow dimension of the individual packages **36** in the array **35**, while maintaining the wrapper **63** taut. The side panel **73***a* is adhesively secured to the strip **75** whereupon the bundle is completed by folding and gluing the flaps **67**, **68**, **69** and **74** in proper sequence (to be described) to complete the bundle ends. The compressive forces are then removed from the bundle, whereupon the stress in the packages **36** is partially taken up by the wrapper **63** which remains taut and maintains the array **35** in a slightly compressed state.

The bundle end structure is illustrated in a partially closed position by FIG. 12. The side flaps **69** are tucked against the array end surface **39** (which shapes the gussets **70** on the lines **66** described in FIG. 11) the top flaps **68** overlie the side flaps **69**, the bottom flaps **67** overlie the side flaps **69** and are secured thereto by adhesive applied to the interior surface of the gussets **70** contiguous with the bottom flaps **67**, and the side flaps **74** overlie the top flaps **68**, bottom flaps **67** and side flaps **69** and are secured thereto by adhesive applied to the interior surface of the side flaps **74**. Adhesive on the gussets **70** which are contiguous with the bottom flaps **67** is necessary to secure the bottom flaps **67** near the bundle corners **80**, thereby assuring that the bottom flaps **67** will maintain the packages **36** in tight frictional engagement after the bundle is opened into a tray.

FIG. 13 shows this embodiment in the fully secured position. The bundle of FIG. 13 is opened into a tray by grasping the pull tab **79** and pulling one tear tape **77** through the wrapper **63**, grasping the second pull tab **79** grasping the second pull tab **79** (which is exposed when the first tear tape **77** is pulled) and pulling the second tear tape **77** through the wrapper **63**, and removing the upper portion of the wrapper **63** to expose the packages **36**.

Many modifications of the invention can be made, and it is not intended to limit the invention to the particular structures described, all reasonable equivalents thereof being intended to fall within the scope of this invention.

What is claimed is:

1. A bundle comprising a plurality of packages each having the shape of a rectangular parallelepiped, said packages arranged in a rectangular array in which they are in proximate touching relation and are pressed against one another as the result of a compressive force acting along at least one axis of said array, and a flexible wrapper folded around said array to form a top panel, a side panel adjoining said top panel on opposite sides thereof, a bottom panel projecting from one side panel, and a strip projecting from the other side panel, said strip being superposed and adhesively secured to the bottom panel at the opposite end of the wrapper to maintain said packages in pressed and compact relationship, and a plurality of flaps projecting laterally from each end of each of said panels, said flaps comprising a top flap, a bottom flap, and two side flaps, said top flap being connected to each of its adjacent side flaps, at least one cut

on said bottom flap, said cut being parallel to the fold lines separating adjoining flaps, the cuts being displaced a distance of from about ½" to about 2" with respect to said fold lines and terminating at a distance of from about ½" to about 2" from the fold line defining the inner end of said bottom flap, said cuts causing the formation of short double folded gussets at the corners of the bundle end face adjacent said cuts when said side flaps are folded in place, said top flap being folded down into superposition with the end surfaces of said array, said side flaps being folded over to lie against said top flap, said bottom flap being folded up to overlie said side flaps and to overlap said top flap, said flaps being adhesively secured in closed overlapping relation to seal the bundle at each end thereof, said wrapper containing on its interior surface two tear tapes located vertically below the distal end of said top flap, each of said tear tapes extending laterally from the end edge of one of said side flaps to the juncture of that side flap with a side panel of said bundle, continuing across said side panel of the wrapper and then across the interior of the opposite side flap to the edge thereof, said bottom flap containing perforations defining an area removable therefrom located over the ends of said tear tapes, said bundle being converted to a tray after pulling said tapes, said tray being formed by the remaining portion of the flexible wrapper extending upwardly from the bottom panel to maintain the integrity of said array of packages.

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JAMES B. MARBERT, Primary Examiner