

Nov. 12, 1968

R. L. LEE

3,410,393

PEELABLE PACKAGING

Filed June 23, 1967

3 Sheets-Sheet 1

FIG. 1

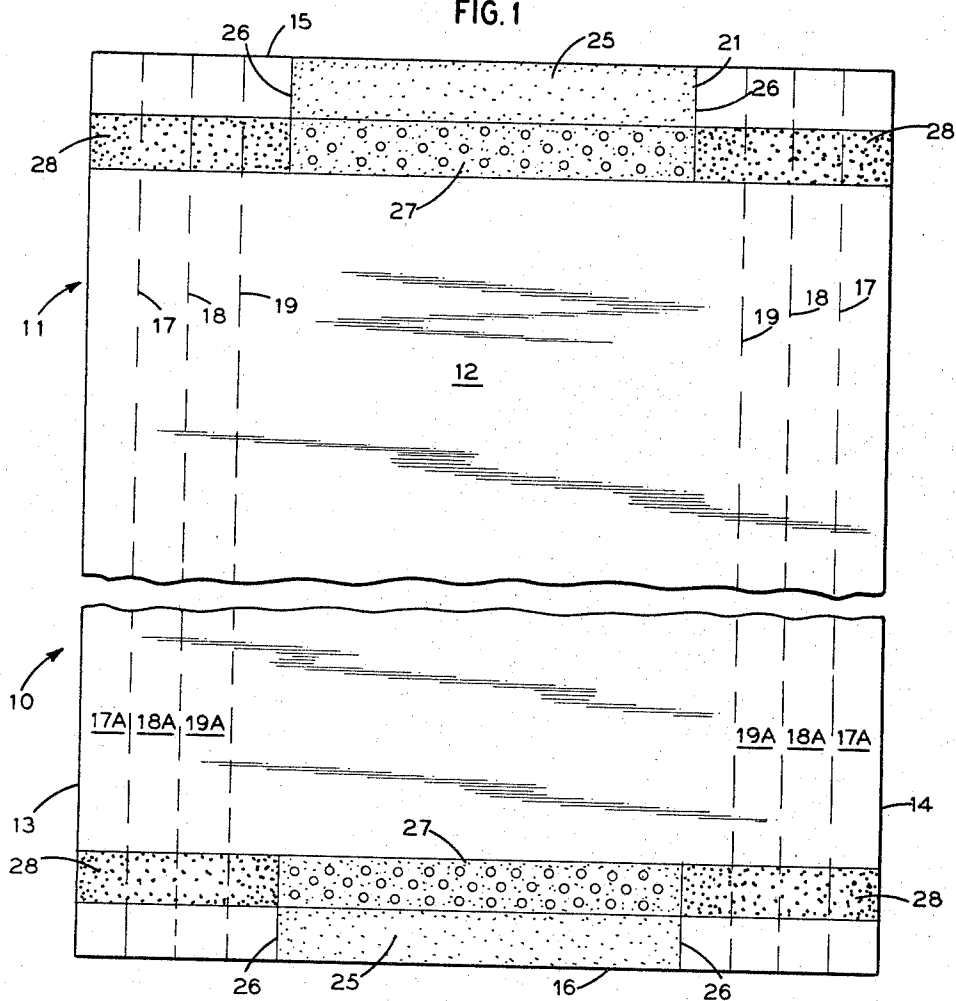


FIG. 3

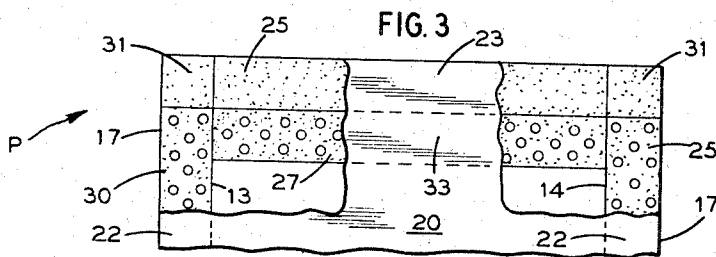
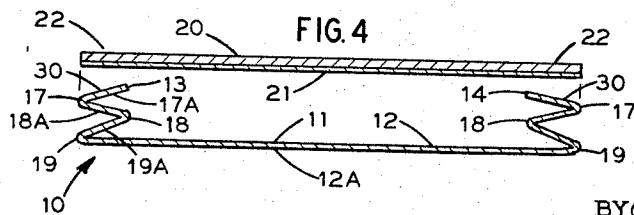


FIG. 4



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FIG. 2

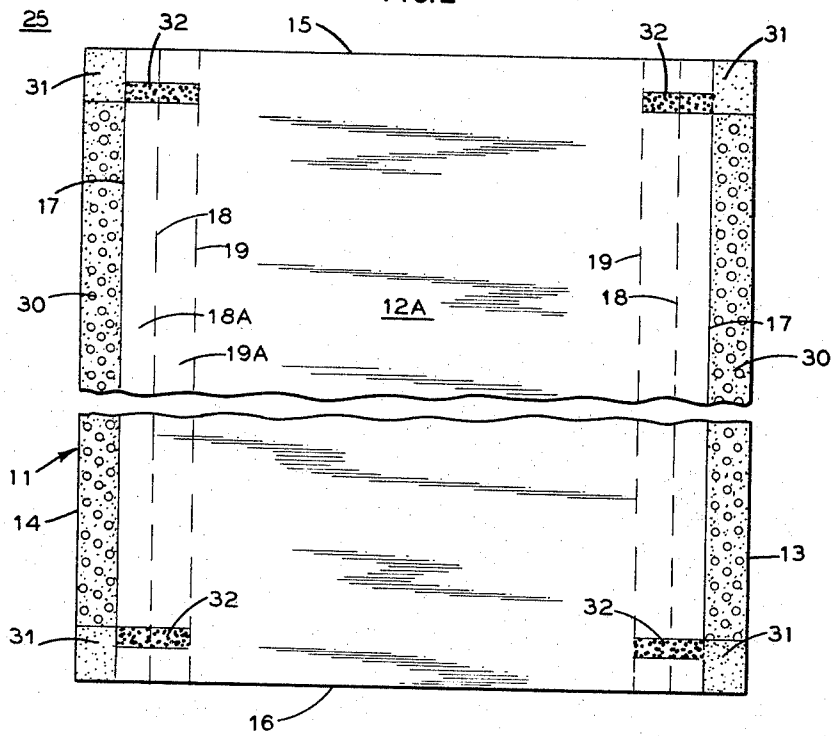
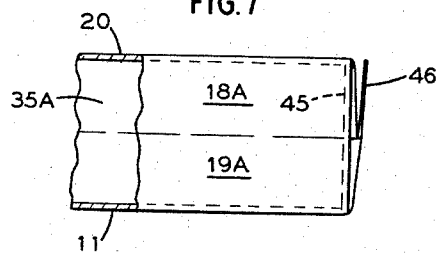


FIG. 7



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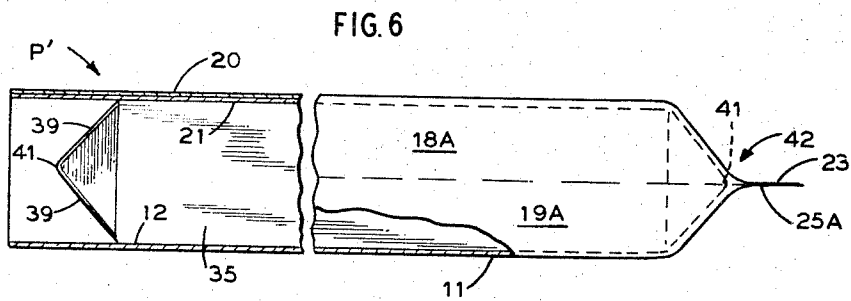
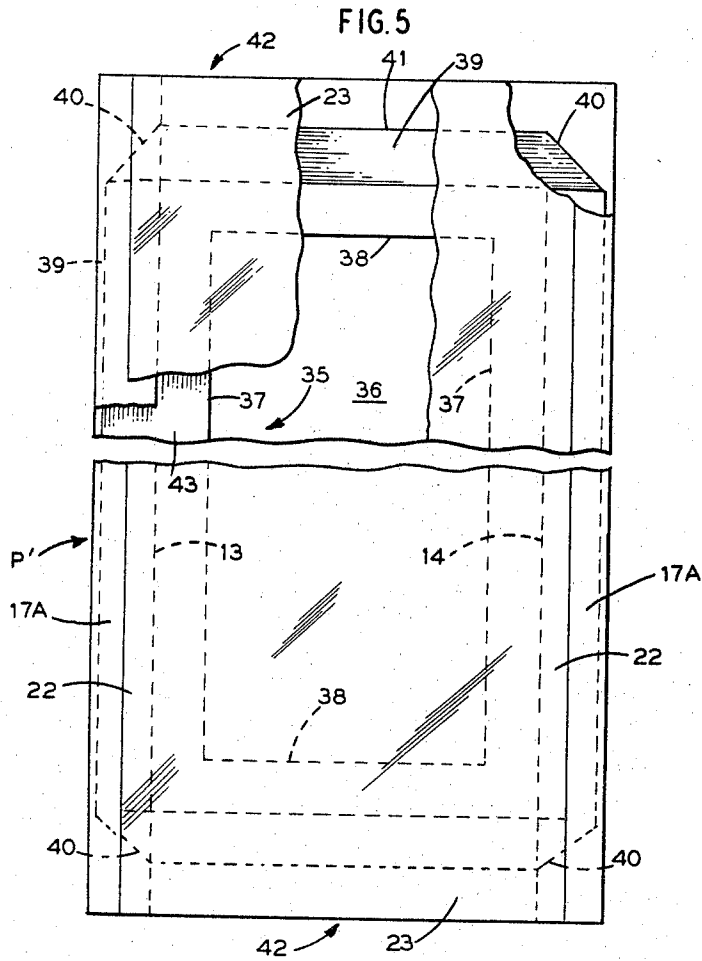
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3,410,393

PEELABLE PACKAGING

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ABSTRACT OF THE DISCLOSURE

A package having a gusseted construction and including a panel peelable from the body of the package for dispensing the contents thereof.

Background of the invention

Applicant, in his Patent No. 3,217,871 discloses a peelable seal package comprising essentially a pair of superposed sheets with a pair of opposed coatings between the marginal portions thereof, which provide a good seal, yet allow for peeling the sheets apart to make the contents of the package readily accessible. Such packaging is particularly useful for enclosing single objects of relatively limited size and bulk.

The instant invention is an improvement on the packaging of Patent No. 3,217,871 and is particularly concerned with packaging for enclosing articles of relatively large dimension and bulk or trays having one or more recesses therein for mounting one or more articles therein; whereby a panel portion of the package may be readily peeled away from the base portion of the package to expose for ready access the packaged article or tray carrying articles.

Accordingly, an object of this invention is to provide improved packaging of a gusseted construction and including a peelable panel; suitable coatings being applied to selected portions of the elements forming the package.

Another object of this invention is to provide improved packaging of the character described for enclosing article holding and dispensing trays; the packaging and tray having correlated configurations to facilitate the packaging operation, to increase resistance to tearing of the packaging at vulnerable areas thereof, and to facilitate the peeling of the peelable panel to expose the contents of the tray and to facilitate dispensing the same.

Yet another object of this invention is to provide packaging of the character described, for enclosing tray means carrying sterilized articles such as surgical instruments and the like; the construction and arrangement of parts of the packaging being related to the tray so as to insure the retention of a sterile field about the periphery of the tray and its contents when the same is exposed by peeling the peelable panel portion of the package.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

Summary of the invention

The instant invention relates to packaging for enclosing articles of substantial size and bulk, as well as recessed trays carrying smaller articles; the packaging being formed from a pair of opposed sheets providing a gusset construction, with coatings applied to selected surface areas of the sheets whereby the packaging is sealed about the contents thereof, yet allows for separation of the packaging elements by peeling.

Brief description of the drawing

FIG. 1 is a top plan view showing a blank for forming one portion of the packaging embodying the invention;

FIG. 2 is a plan view showing the reverse side of the blank shown in FIG. 1;

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FIG. 3 is a top plan view showing a portion of the complete packaging, with parts broken away;

FIG. 4 is a transverse sectional view showing the related portions of the packaging;

FIG. 5 is a top plan view of the packaging including a tray insert, with parts broken away;

FIG. 6 is a side elevational view thereof;

FIG. 7 is a side elevational view showing a portion of another embodiment of the invention.

Description of the preferred embodiments

The packaging of the instant invention is particularly adapted for enclosing articles of substantial size, which may be of a sterile or non-sterile character; and for enclosing recessed trays which carry one or more articles of a sterile or non-sterile character, whereby the package may be readily opened by peeling a panel portion thereof to expose for access and removal therefrom the contents thereof.

The packaging of the instant invention is formed from paired webs or sheets of material carrying selected coatings, as more fully disclosed in applicant's Patent No. 3,217,871; and including paper, plastic film, metal foil, synthetic fibrous webs, and the like. By way of illustration, the packaging is shown as formed of a sheet of paper and a transparent film of Mylar or the like.

Thus, as shown in FIG. 1, one element of the packaging generally indicated at P, is in the form of a paper sheet 10 of rectangular shape and forming a base panel 11 having an inner surface 12 and an outer surface 12A. Panel 11 has parallel side edges 13, 14 and parallel end edges 15, 16. The panel 11 is precreased to form parallel fold lines 17, 18 and 19 on each side thereof, thereby providing side gusset portions 17A, 18A and 19A upon folding the side marginal portions of said panel along lines 17, 18, 19.

The other element of packaging P takes the form of a transparent panel 20 of Mylar film which carries on one surface thereof, a thin thermoplastic adhesive coating 21 extending over the entire surface thereof. Coating 21 may be derived from polyethylene, polypropylene or other thermoresponsive material which is adherent not only to panel 20, but may also be heat sealed to sheet 10, more particularly to selected portions thereof, as hereinafter disclosed.

Thus, base panel 11 in open blank form is precoated by suitable means, over selected areas thereof, with selected thermoresponsive materials correlated to coating 21 on panel 20, as more fully set forth in Patent 3,217,871. Thus, side marginal portions 22 of panel 20 may be heat sealed to folded gusset portions 17A of base panel 11 while end marginal portions 23 of panel 20 may be heat sealed to the opposite end marginal portions of base panel 11 to provide a well sealed package P for the contents thereof; yet allowing panel 20 to be peeled away from base panel 11 to expose the contents of the package for removal therefrom.

Accordingly, there is applied to the inner surface 12 of panel 11 at the opposite ends thereof, transversely extending bands 25 of a thermoplastic composition which are nonadherent to the coating 21 on panel 20 over a wide range of temperatures including sealing temperatures. Thus, the bands 25 may be derived from a mixture of nitrocellulose and polyvinyl acetate and smaller proportions of suitable plasticizer and solvent.

Bands 25 have their outer edges coterminous with panel edges 15, 16 and terminate at their opposite ends inwardly of fold lines 19, as at 26. A second set of bands 27 are applied by coating to inner surface 12 of panel 11, said bands 27 being immediately adjacent bands 25 and formed of the same thermoplastic composition. However, bands 27 are of a discontinuous, interrupted nature, thereby ex-

posing many closely spaced small areas of panel surface 12, in a manner more fully disclosed in Patent No. 3,217,871.

Bands 27 have a length substantially equal to that of bands 25. Bands 25, 27 may be relatively narrow but of a width suitable for conventional package sealing operations utilizing heated sealing bars or wheels.

The inner surface 12 of base panel 11 has further applied thereto short bands 28 of a heat sealing thermoplastic composition such as vinyl copolymer or the like. Bands 28 extend from the opposite ends of bands 27 to side edges 13, 14 of panel 11, for the purpose hereinafter appearing.

The reverse side of panel 11, as at 12A, is provided with longitudinally extending band coatings 30 which are applied to the outermost gusset portions 17A and extending over a width thereof from edges 13, 14 to fold lines 17. Coatings 30 are of a thermoplastic nature similar to coatings forming bands 27, and are also of a discontinuous interrupted form so as to expose many spaced small surface areas of gusset portions 17A.

Band coatings 30 terminate at their opposite ends short of end edges 15, 16 of panel 11, see FIG. 2. Coatings 31 of a material similar to that of bands 25, and being also of a continuous, uninterrupted character, are applied to the opposite terminal ends of gusset portions 17A. Thus, when gusset portions 17A, 18A and 19A are folded in accordion form, as shown in FIG. 3, coatings 31 will be in lateral alignment with bands 25 and form extensions thereof. Similarly, opposite end portions of coatings 30 on folded gusset portions 17A will be in lateral alignment with bands 27 and form extensions thereof.

Also, on the reverse side 12A of panel 11, there is applied short narrow bands 32 of heat sealing thermoplastic composition similar to that of bands 28. Bands 32 extend parallel and adjacent to panel edges 15, 16, being located inwardly of lower portions of coatings 31 so as to extend over gusset portions 18A, 19A, for the purpose later described.

In packaging an article, not shown, the same is located between panels 11, 20 which are in superposed relation; gusset portions 17A, 18A, 19A being accordion folded to bring gusset portions 17A in opposed relation to side marginal portions 22 of panel 20, see FIG. 4. Heat sealing means in the form of bars or wheels, of conventional character, are applied to longitudinal and transverse portions of the superposed panels to complete the package. Also, panels 11 and 20 in continuous sheet form may be sealed together along their opposed side marginal portions and transversely cut to form individual packages P which are filled and then transversely sealed.

Thus, with the gusset portions 17A, 18A and 19A in their accordion pleated condition, coatings 28 will secure the terminal portions thereof together while coatings 32 will secure outer surface portions of gusset portions 18A, 19A together. The side marginal portions 22 of panel 20 will be sealed to the outer surfaces of gusset portions 17A by way of opposed interrupted coatings 30 and coating 21 while transversely extending portions 33 of panel 20 located inwardly of end marginal portions 22 thereof will be sealed to inner surface 12 of panel 11 through interrupted coatings 37 and opposed coating 21 on panel 20.

As the coating 21 on panel 20 is non-adherent to band coatings 25 and the coatings 31, the opposite end marginal portions 23, 24 of panel 20 will be in non-adherent, separated relation to the opposite end marginal portions of base panel 11. Thus, the separation of panel 20 from panel 11 may be started by way of said marginal portions 23, 24 with a peeling action which permits separation of the side marginal portions 22 of panel 20 from gusset portions 17A as well as from the transverse bands 27, in view of the interrupted bonding effect attained by the coaction of coatings 27, 30 with the coating 21 on panel 20, as more fully set forth in Patent No. 3,217,871.

It will be apparent that the gusseted packaging P is

well adapted to contain reasonably large articles, as for example, surgical devices and the like. The contents of the package P may be made sterile by the use of gas or other procedures well known in the art. Access to the contents of the package P is possible by peeling the panel 20 away from the base panel 11, exposing such contents which may be readily removed therefrom.

Gusseted packaging P also lends itself to the enclosure of tray elements carrying the item or items to be packaged. Thus, trays formed of light weight materials such as foam plastic, cardboard, molded pulp, or the like, having depressions formed in one surface thereof to receive individual items; may be assembled with packaging P as a container therefore.

As shown in FIGS 5, 6; packaging P', similar to packaging P shown in FIGS. 1-4, encloses a tray member 35 which may be formed of foamed plastic such as polystyrene or the like. Tray member 35 is shown with a single recess 36 of rectangular shape for receiving therein an article, not shown. Recess 36 is defined by side edges 37 and end edges 38. The ends of the tray member 35 are tapered as at 39 with bevelled side portions 40. The tapered end portions 39 form end edges 41.

It will be apparent that the tray member 35 with its contents, may be readily introduced into packaging P', the tapered ends 39 and bevelled edges 40 facilitating the assembly operation. The fishtail portions 42 at the opposite ends of packaging P' extending beyond tray edges 41 and made up of marginal end portions 25A of base panel 11, including the band coated portions 25, 27 thereof and marginal end portions 23 of panel 20; are readily sealed together by the usual heated sealing bars or wheels.

Also, it has been found that the gusset portions of base panel 11, at the opposite ends thereof adjacent sealed fishtail portions 42, show increased resistance to tearing, cracking or other forms of rupture.

The side marginal portions 22 sealed to gusset portions 17A of base panel 11, as previously described; are supported on the marginal surface portions 43 of tray member 35. The edges 13, 14 of gusset portions 17A are spaced outwardly of side edges 37 of tray member 35; thus providing a sterile field when peeling panel 20 away from panel 11, and exposing recess 36 in tray member 35, so as to readily remove the sterile contents thereof without fear of contamination.

As shown in FIG. 7, tray member 35A is similar to tray member 35, except that one or both end edges thereof, is flat instead of tapered, as shown at 45. In this case, the fishtail end portion 46 of packaging P' may be folded flat against said end edge 45 and peelably sealed in its folded condition.

It is understood that the packaging P and P' may be made up of various combinations of paper, film, foil and plastic sheets, as well as non-woven webs and other sheet materials; together with a suitable combination of continuous and discontinuous coatings of thermoresponsive materials which provide seals of desired properties, yet lending themselves to peeled separation when the packaging is to be opened, all as set forth in said Patent No. 3,217,871.

I claim:

1. Packaging comprising a pair of opposed sheets for enclosing an object therebetween with peripheral portions of said sheets extending beyond the peripheral edge portions of said object, one of said sheets having foldable side gusset portions, said one sheet having on the inner surface thereof and at the opposite ends thereof a pair of adjacent inner and outer thermoresponsive coatings extending toward opposite side edges of said sheet, the outermost coating being of a continuous, non-interrupted character, the innermost coating being of a discontinuous, interrupted character, the outermost side gusset portions of said one sheet having applied to the outer surface thereof thermoresponsive coatings of a discontinuous, interrupted character which extend toward the opposite end edges

thereof, the other of said sheets having surface portions of a thermoplastic character which are in opposed relation to the marginal opposite end portions and the folded outermost gusset portions of said one sheet, said thermoplastic surface portions of said other sheet being non-adherent to the thermoresponsive coatings on said one sheet over a wide range of temperatures, said thermoplastic surface portions of the other sheet being heat sealed at closely spaced surface areas thereof to said one sheet through the discontinuities in the thermoresponsive coatings thereon, and heat sealable coatings on opposite end portions of the gusseted side portions of said one sheet for sealing the overlying gusseted side portions at the opposite ends thereof.

2. Packaging as in claim 1 wherein the outermost gusset portions of said one sheet have on the outer surface thereof and at the opposite ends thereof continuous, non-interrupted coatings of thermoresponsive material which are in lateral alignment with said outermost coatings on the opposite end portions of said one sheet and the inner surface thereof.

3. Packaging as in claim 2 wherein the innermost gusset portions of said one sheet have on the outer surface thereof and at the opposite ends thereof, sealing thermoplastic coatings whereby the overlying outer gusset portions at the opposite ends thereof are heat sealed together.

4. Packaging as in claim 3 wherein the gusset portions of said one sheet have on the inner surface thereof and at the opposite ends thereof sealing thermoplastic coatings which are laterally aligned with the innermost coatings on the opposite ends of said one sheet whereby opposed gusset portions at the inner surface of said one sheet are secured together.

5. Packaging comprising in combination object carrying tray means, means for enclosing said tray means and the object carried therein, said tray means having tapered edge portions at the opposite ends thereof, said enclosing means including a pair of opposed sheets, one of said sheets having foldable gusset portions on the opposite sides thereof, said gusset portions enclosing the side portions of said tray means and extending over the top marginal side portions thereof, the other of said sheets over-

lying the top of said tray means with marginal portions thereof overlying marginal portions of said one sheet, means for sealing the opposed marginal portions of said sheets, said sealing means comprising a pair of interposed thermoplastic coatings, one of said coatings being of a continuous, non-interrupted character, the other of said coatings being of a discontinuous, interrupted character, said coatings being non-adherent to each other over a wide range of temperatures, spaced portions of said continuous coating extending through the discontinuities of said discontinuous coating and sealed to the sheet carrying said discontinuous coating on closely spaced surface portions thereof.

6. The combination as in claim 5 wherein said opposed sheets are sealed together at the opposite ends thereof in transverse zones extending beyond the opposite tapered edges of said tray means.

7. The combination as in claim 6 wherein said foldable gusset portions carry thermoplastic seal coatings at the opposite ends thereof for sealing opposed folded gusset portions at said transverse extended zones of said sheets.

8. The combination as in claim 5 wherein the side edges of the outermost gusset portions of said one sheet are located on the top surface marginal portions of said tray means outwardly of recessed portions thereof.

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