

Aug. 7, 1962

R. J. STAUFFER
PACKAGING INSERT

3,048,323

Filed March 2, 1959

2 Sheets-Sheet 1

FIG. 1.

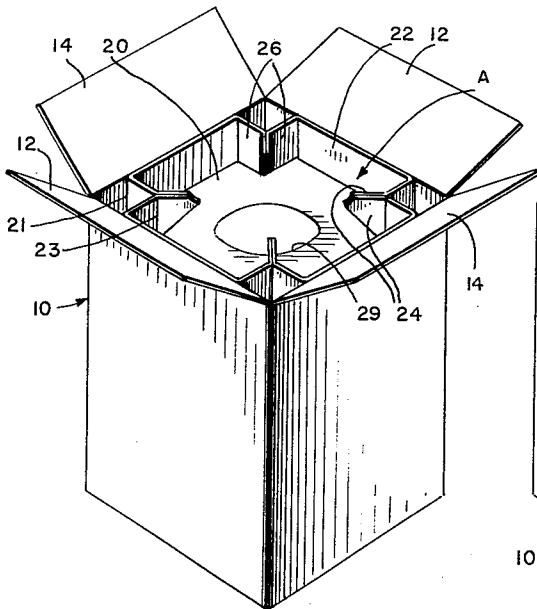


FIG. 2.

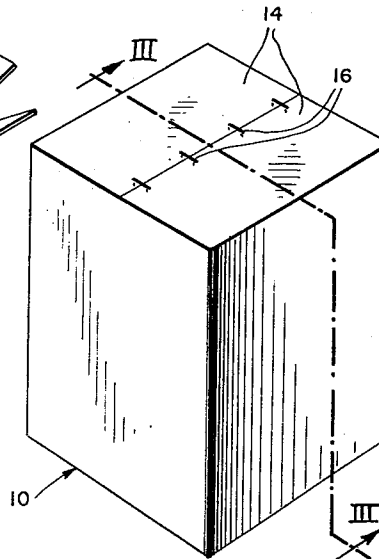


FIG. 4.

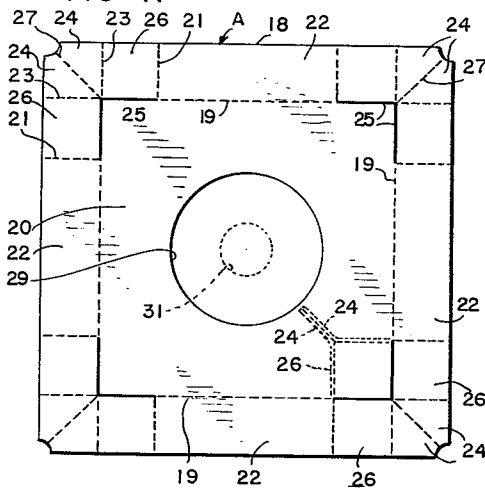


FIG. 3.

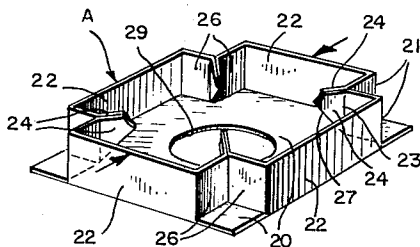
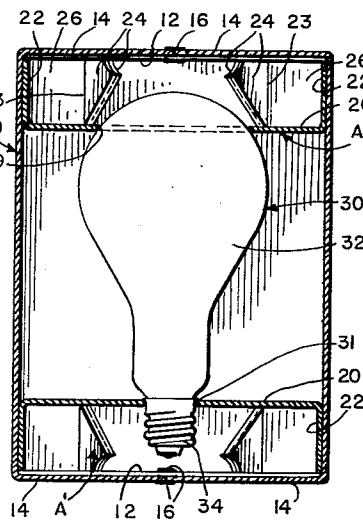


FIG. 5.

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FIG. 6.

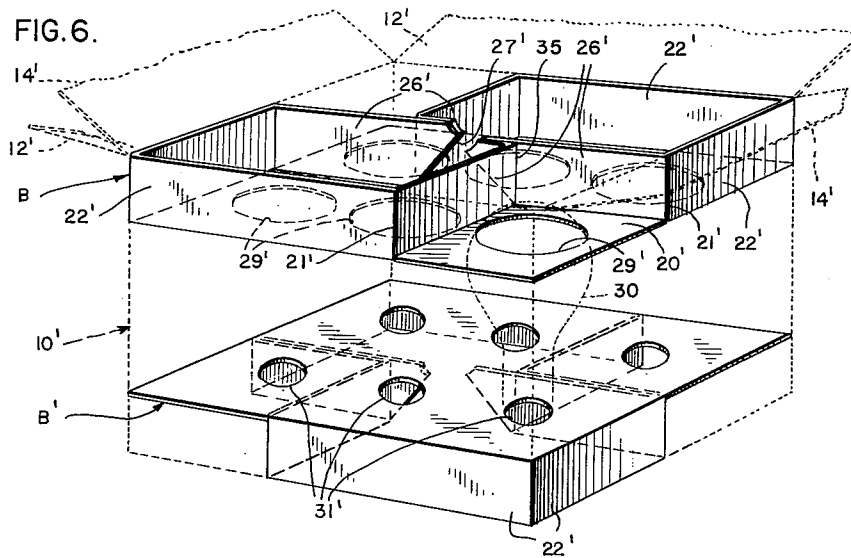
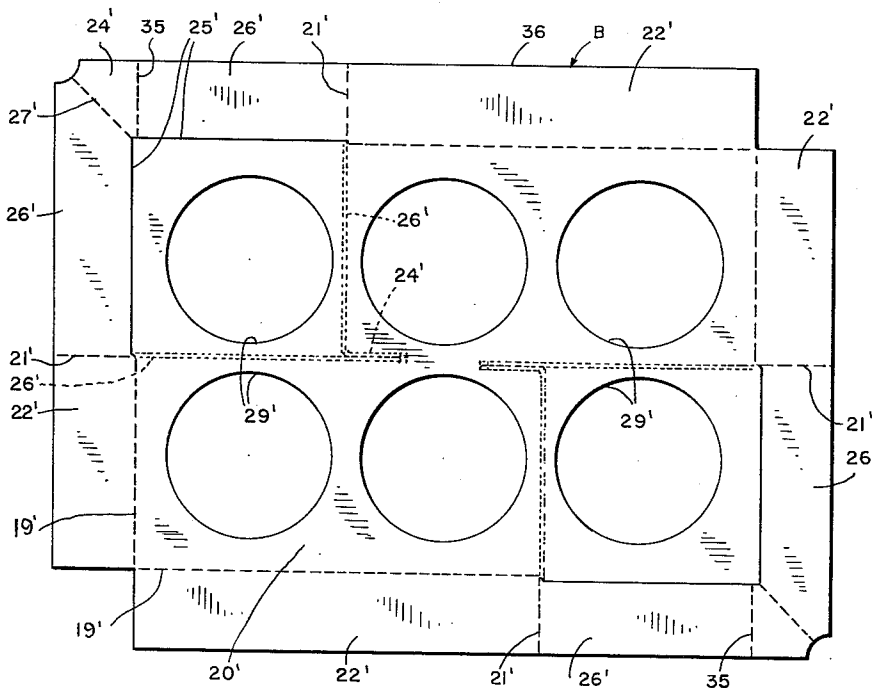


FIG. 7.



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PACKAGING INSERT

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5 Claims. (Cl. 229-39)

This invention relates to packaging and, more specifically, to a packaging insert for a shipping container.

As is well-known, one of the most effective ways to protect a fragile article during shipment is to provide an air space between the article and the walls of the container in which it is packed. The packed article is thus insulated, so to speak, from mechanical shocks arising from rough handling and protected from possible damage should the sides or ends of the container be crushed. Such protective spacing is often achieved by suspending the packed article within a slightly oversize container between two suitably apertured tray-like forms or so-called "inserts" disposed transversely of the container at the ends thereof. The inserts are dimensioned to nest between the ends of the article and container with their flange portions disposed outwardly so as to rest firmly against the container end flaps when the latter are closed. The resultant inward pressure on the inserts keeps them tightly seated against the engaged ends of the packed article and maintains the desired protective spacing between the ends of the article and the container.

While the foregoing construction has proven satisfactory from a protection standpoint, it presents a serious problem where slotted containers are employed in that the compression of the flap closure required to staple or glue the flaps together causes the flap closure to buckle inwardly and collapse into the end space therebeneath. Thus, either special sealing techniques of a more time-consuming and costly nature have to be employed or the spacing at the ends of such containers eliminated with a resultant loss of protection thereat. Moreover, even if the sealing of the container were not so troublesome the ease with which the sealed end walls could be collapsed constituted another serious drawback in view of the possible exposure of the container contents, should such buckling occur, and the risk involved in stacking such containers one upon the other or otherwise pressuring the end walls thereof.

With the foregoing in view, it is the general object of this invention to provide an improved insert for use in packing fragile articles for shipment.

A further object is the provision, in combination with a slotted shipping container, of a packaging insert adapted to maintain a protective spacing between the ends of the container and article packed therein and to permit the sealing of the container by means of stapling, gluing or other sealing techniques that require the application of a compressive force to the flap closure.

Still another object of the present invention is the provision of a combination protective and flap-supporting insert for a shipping container which insert can be formed from a single piece of packaging material and subsequently shipped and stored as a flat blank and then readily set up for use and placement into the container.

The aforesaid objects, and others which will become apparent to those skilled in the art as the description proceeds, are achieved by forming from selected portions of the insert flanges a foldable assembly adapted, when the aforesaid flange portions are set up for use and the insert is placed into the container, to be automatically erected and locked in upstanding position to provide a rigid support structure for the flap closure of the container during and after sealing.

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For a better understanding of the invention reference should be had to the accompanying drawing wherein:

FIG. 1 is a perspective view of a packed shipping container, prior to sealing, embodying one form of packaging insert according to this invention;

FIG. 2 is a view corresponding to FIG. 1 but shows the flaps of the container stapled together in closed relation to form the usual end walls;

FIG. 3 is a side sectional view through the sealed container along the line III-III of FIG. 2, in the direction of the arrows;

FIG. 4 is a plan view on an enlarged scale of a blank from which the inserts shown in FIGS. 1 and 3 are formed;

FIG. 5 is a perspective view of the type of insert shown in FIGS. 1, 3 and 4 after it has been set up and is ready to be placed into the container;

FIG. 6 illustrates an alternative embodiment of the invention wherein a pair of modified packaging inserts are disposed at the ends of a container dimensioned to hold a plurality of fragile articles, the container and its flaps being shown in dotted outline to more clearly illustrate the construction and character of the modified inserts; and

FIG. 7 is a plan view on an enlarged scale of the blank from which modified inserts of the type shown in FIG. 6 are formed.

While the invention is applicable to the packaging of various kinds of fragile articles it is especially adapted for use in conjunction with the packaging of large high-wattage electric lamps of bulbous configuration and hence has been so illustrated and will be so described.

With specific reference to the drawings, in FIG. 1 there is shown a conventional slotted shipping container 10 of square cross-section having the usual pairs of inner flaps 12 and outer flaps 14 at each of its ends. As shown in FIG. 3, the container 10 is dimensioned to snugly accommodate between its top and bottom walls formed by the aforesaid flaps, when closed, a pair of inserts A and A' and a fragile article, such as a bulbous-shaped high-wattage electric lamp 30, disposed between said inserts. The side walls of the container 10 are considerably greater in width than the major diameter of the lamp envelope 32 so as to achieve the desired protective spacing when the lamp 30 is suspended centrally of the container, as shown. Suitable apertures 29 and 31 are provided in the inserts to receive the end of the envelope 32 and base 34, respectively, of the lamp 30 thereby anchoring the lamp in the aforesaid suspended position within the container. Each of the inserts A and A' are of the usual tray-like configuration and are so dimensioned that they nest within the ends of the container 10 with their flange portions resiliently pressed flat against the side walls thereof and disposed toward the container opening so as to be pressed inwardly by the inner flaps 12 when the latter are closed. In this manner the inserts A and A' are maintained in planes parallel to the flap closures of the container 10 and are seated against the ends of the lamp 30 thereby securely anchoring the lamp in spaced relationship with respect to the end walls of the container formed by said flap closures.

As shown in FIG. 4, the inserts A and A' are preferably formed from a single piece of relatively stiff packaging material such as corrugated fibreboard or the like cut to form a square blank 18 considerably larger in area than the cross-sectional area of the container 10. Division of the blank 18 into a base or body member 20 and hinged flange elements 22 of the proper dimension to permit the insert, when set up, to nest within the ends of the container 10 in the above-described manner is accomplished by marginal score lines 19 spaced inwardly from and parallel to the edges of the blank. In contrast

to the prior art inserts wherein the flanges are coextensive with the sides of the body member, the flange elements 22 according to this invention are terminated short of the ends of the body member 20 by means of a pair of transverse score lines 21 at each corner of the blank 18. Said score lines 21, together with an additional set of transverse score lines 23 and slits 25 which extend along the marginal score lines 19 equal distances back from the corner of the body member 20, provide at each corner of the blank 18 a foldable web assembly consisting of a pair of bridge panels 26 having a square-shaped corner panel therebetween. Each of these corner panels are, in turn, subdivided by a diagonal score line 27 into a pair of triangular-shaped panels or elements 24. The web assemblies, by virtue of the right-angle cut formed by the slits 25 and the hinge action afforded by the transverse score lines 21, are adapted to automatically fold inwardly from the corners of the body member 20, when the flange elements 22 are swung toward their upstanding position, and subsequently form an upwardly and inwardly protruding upright or truss-like structure that seats against the body member 20, as shown in FIG. 5. When erected the bridge panels 26 constitute a re-entrant cell structure and the triangular-shaped elements 24 a diagonally disposed gusset integral with said cell structure thereby constituting what may be termed a truss at each corner of the insert A which truss extends inwardly toward the center of the body member 20 almost to the edge of the envelope-receiving aperture 29, as shown by the dotted outline of the said erected members in the lower right-hand corner of the blank 18 as viewed in FIG. 4. Each of the truss structures thus bridge or span a major portion of the body member 20 and together therewith form a rigid supporting framework for the end flaps 12 and 14 which permits the end wall formed thereby to be sealed by means of staples 16, as shown in FIGS. 2 and 3, and to withstand compressive forces that would otherwise cause it to collapse.

Since each of the above-described web assemblies is hingedly connected to the adjacent ends of the flange elements 22 said web assemblies are not only automatically erected when the flange elements 22 are set up for use but are locked in support formation when the inserts A and A' are subsequently inserted into the container 10 and said flange elements maintained in upstanding position by the container walls. In addition, since the truss-forming web assemblies are fabricated from what heretofore constituted the corner-forming portions of the flange elements 22, the triangular elements 24 and bridge panels 26 comprising said web assemblies are inherently adapted, when in relaxed condition, to lie in substantially the same plane as the body member 20 thereby permitting the inserts A and A' to be collapsed flat for shipment and storage. It is also noteworthy that the foregoing construction affords the additional advantage of achieving the desired buttressing of the end walls against compressive forces with the same amount of packaging material previously employed in the prior art type inserts which merely held the packed article in recessed position within the container.

As shown in FIGS. 6 and 7, the principles of this invention are also applicable to the packaging of a multiplicity of articles such as six lamps 30 of the type previously mentioned. In this case, the inserts B and B' are rectangular in form as is the container 10' (shown in dotted outline in FIG. 6). The transverse score lines 21' are also placed further away from the corner of the body member 20' formed by the slits 25' and said slits proportionately lengthened to provide a much longer web assembly at diagonally opposite corners only of the blank 36, as shown in FIG. 6 and more particularly in FIG. 7. Thus, when the web assemblies are erected (as shown in FIG. 6 and the dotted outline thereof in FIG. 7), the support framework protrudes a greater distance inwardly

of the body member 20' and toward the center of the container 10' affording the added reinforcement required for the elongated flap closure of the rectangular container 10' without the need of any additional material whatsoever. It will also be noted that only one score line 35 extends outwardly from the apex of the corner of the panel member 20' formed by the slits 25' so that only one triangular shaped element 24' is provided. When disposed in support formation the aforesaid element 24' overlies the similarly shaped adjacent end of the other bridge panel 26' to form a longitudinally disposed gusset, as shown. In this manner, the truss structures formed by the bridge panels 26' and gusset are both so disposed as to seat against the body member 20' between either the bulb-receiving apertures 29' or base-receiving apertures 31' provided in said panel member, as the case may be.

The multiple-lamp inserts B and B' correspond in all other respects with the single-lamp inserts A and A' previously described and are thus adapted to provide the same degree of reinforcement at the ends of the rectangular-shaped container 10', when placed therein and disposed in nesting engagement with the ends of the lamps 30 in the manner shown in FIG. 6.

It will be apparent from the foregoing that the objects of the invention have been achieved by providing an improved packaging insert adapted not only to maintain a protective spacing between the end of a fragile article and the end of the container in which it is packed but to support the flap closure thereat and afford a degree of rigidity and resistance to crushing heretofore unattainable.

While several best known embodiments of this invention have been shown and described in detail in accordance with the patent statutes, it is to be particularly understood that it is not limited thereto or thereby.

I claim:

1. A protective and buttressing insert for the end of a shipping container comprising a body member of substantially rigid sheet material shaped to nest within the open end of said container, a pair of flanges hingedly connected to the sides of said body member, said flanges being spaced from each other and swingable into upstanding position, and an erectable web assembly hingedly attached to the adjacent ends of said flanges and normally located at the periphery of said body member, said web assembly comprising a pair of bridge panels and a pair of gusset-forming panels hinged to each other and arranged to swing inwardly of said body member when said flanges are erected and, when thus actuated, to form a rigid inwardly-protruding and upstanding truss structure that is seated against said body member and spans a considerable portion thereof, said web assembly and flanges being collapsible into a common plane with said body member.

2. A protective and buttressing insert as set forth in claim 1 wherein; said body member is of rectangular configuration, said web assemblies are located at diagonally opposite corners thereof, and said gusset-forming panels are of triangular configuration and together form a rectangular panel when collapsed that is hingedly connected to the respective flanges by said bridge panels.

3. A protective and buttressing insert as set forth in claim 1 wherein; said body member has at least one aperture therein adapted to receive a part of an article packed in said container, said web assembly is so hinged to said flanges that it is automatically set up in support formation when said flanges are erected, and said flanges and web assembly are integral with said body member and together therewith constitute a unitary blank that lies flat when collapsed.

4. In combination, a shipping container having an end wall and side walls that define at least one corner; an article disposed within said container and spaced from said end wall; and an insert of relatively stiff sheet mate-

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rial and tray-like configuration interposed between and in engagement with said end wall and the proximate end of said article; said insert comprising, a body member of substantially the same configuration as the cross-sectional configuration of said shipping container proximate said end wall, said body member having an aperture therein, an upstanding flange hingedly connected to each of the sides of said body member that define the corner thereof, said flanges terminating short of said corner and being disposed toward said end wall and held in such position by the engaged side walls of said container, and an erectable web assembly hinged to the ends of said flanges proximate the corner of said body member and locked by said flanges in upstanding position between said end wall and the body portion of said insert, said upstanding web assembly including a pair of bridge panels and a conjoined gusset that is located inwardly of said bridge panels and together therewith spans a considerable portion of said body member and end wall and extends inwardly from the corner thereof, and said body member being disposed transverse to said article and seated thereagainst with a part of said article extending into the aperture in said body member whereby said insert, in addition to maintaining a protective spacing between said article and said end wall, provides a rigid elongated truss support for said end wall that reinforces it against collapse from compressive forces.

5. In combination, a container having a plurality of side walls that define at least one corner and are provided with flaps at one end that are adapted to be intumed and form an end wall for said container; and a protective-and-buttressing insert for said container that is insertable into the open end of said container and adapted to nest there-within and be seated against the end of an article packed in said container; said insert comprising, a body member

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of relatively stiff sheet material and substantially the same configuration as the cross-sectional configuration of said container at the open end thereof, said body member having an aperture therein adapted to receive a part of the packed article, erectable flanges hinged to the sides of said body member that define the corner portion thereof, said flanges being adapted to resiliently press against the sides of said container and be held in upstanding position thereby when said insert is inserted into said container, and an erectable web assembly hinged to the ends of said flanges proximate the corner portion of said body member, said web assembly comprising a pair of bridge panels and hinged gusset-forming elements adapted to swing inwardly and form an elongated upstanding truss structure that seats against said body member when said flanges are erected, said bridge panels and gusset-forming elements being so oriented and dimensioned that when erected they project inwardly from the corner of said body member a distance sufficient to reinforce the end wall formed by said flaps and render that end of said container crush-resistant.

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