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DISPLAY CARTON

2 Sheets-Sheet 1

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DISPLAY CARTON

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2 Sheets-Sheet 2

FIG. 3.

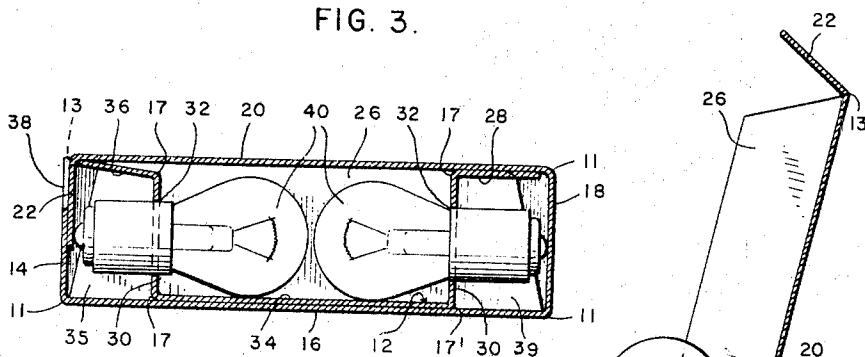


FIG. 4.

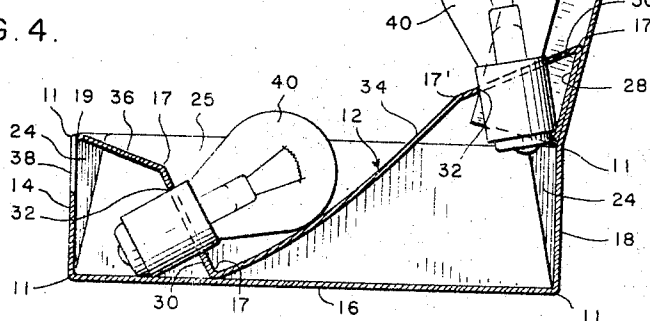
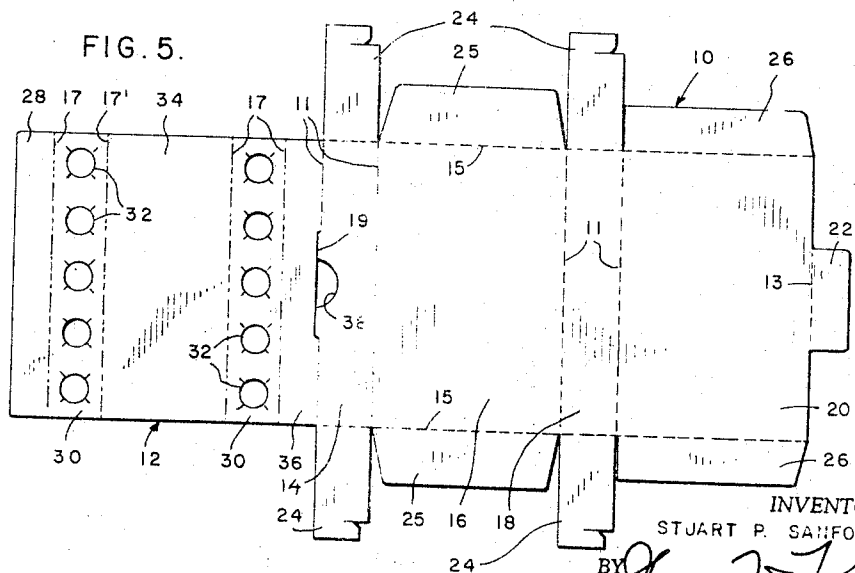


FIG. 5.



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1

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## DISPLAY CARTON

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This invention relates to a display carton and, more particularly, to a carton for packaging a plurality of small fragile articles such as miniature type electric lamps and then attractively displaying and rendering them readily accessible for use.

Containers adapted to protectively unitize a plurality of articles and then utilize the opening movement of a hinged cover to activate a movable tray member adapted to hold said articles and thus convert the container into a display assembly are well known in the art. Heretofore, however, the interaction between the cover and the tray member necessary to effect the desired automatic withdrawal and positioning of the packed articles was achieved by a coupling arrangement and tray assembly which were separate from the container proper thus necessitating a plurality of parts and connections or juncture seams. Such structures were, accordingly, not only difficult and costly to fabricate but did not make the most efficient use of the packaging and connecting materials which were utilized.

In addition, retention of the container elements and the packed articles in the desired display formation was generally accomplished by the insertion or manipulation of a separate bracing element or by displacing and properly orienting a weakened integral part of the container, neither of which proved entirely satisfactory insofar as they made the setting-up of the carton into a display unit dependent upon the proper conditioning of specific members by the retailer and did not positively and permanently lock the container, tray element and articles in the desired display arrangement.

It is accordingly the general object of the present invention to provide an improved display carton which will obviate the foregoing deficiencies inherent in the prior art structures.

Another and more specific object of this invention is to provide a display carton which can be easily and economically fabricated and is adapted to compactly and protectively unitize a plurality of fragile articles such as miniature type electric lamps or the like for shipment and storage and then be conveniently converted into an attractive point-of-purchase display assembly which not only facilitates the removal or replacement of the packed articles into the carton but which permanently retains said articles and carton in the desired display formation.

The aforesaid objects of the invention, and others which will become apparent as the description proceeds, are achieved by providing a display carton that is fabricated from a single piece of flexible packaging material such as paperboard or the like which has been cut, scored and assembled to form a body section containing a resiliently-expendable article-retaining tray and having a hinged cover which is attached to and actuates said tray in such a manner that the tray and the articles carried thereby are automatically withdrawn from said body section and retained in predetermined display relationship therewith when the cover is opened.

2

A better understanding of the invention may be had by referring to the accompanying drawing wherein:

Fig. 1 is a pictorial view of a display carton according to this invention;

Fig. 2 is a view corresponding to Fig. 1 but shows the cover in its open position illustrating the manner in which the packed articles are automatically exposed for convenient access and the carton automatically converted into a display assembly when the cover is thus disposed;

Fig. 3 is a cross-sectional view on an enlarged scale of the closed carton taken along the line III—III of Fig. 1, looking in the direction of the arrows;

Fig. 4 is a view corresponding to Fig. 3 but shows the pivotal hinged relationship between the cover and the lamp-and-tray assembly and their respective positions relative to one another when the carton is opened as in Fig. 2; and

Fig. 5 is a plan view on a reduced scale of the blank from which the display carton illustrated in Figs. 1 to 4 is fabricated.

Although the principles of this invention are broadly applicable to the "unitized" packaging and display of any type of article which lends itself to this manner of merchandizing, the invention is particularly adapted for use in conjunction with the marketing of miniature type lamps such as those employed in automobiles and the like and hence has been so illustrated and will be so described.

With specific reference to the form of the invention illustrated in the drawing, in Figs. 1 to 4 there is shown a carton having a front wall 14, a bottom wall 16, a back wall 18 and a cover 20 which cover is of substantially the same configuration as said bottom wall and hingedly connected to the upper edge of said back wall along a score line 11. Said front and back walls may be provided with hinged depending tabular extensions 24 which are intumed and slidably interlocked one with another to form a pair of upstanding side walls which together with said bottom, front and back walls define a generally rectangular enclosure that constitutes the body section of the carton.

A pair of side flaps 25 integral with and hingedly connected to the side edges of the bottom wall 16 may be provided and folded inwardly of the aforesaid side walls in overlapped relationship therewith to enable a pair of tuck flaps 26 hingedly connected to the sides of the cover 20 to slip inwardly of said side walls into the body section (see Figs. 1 and 3) when said cover is closed. This construction, in conjunction with a conventional friction-lock arrangement comprising a tongue 22 hingedly connected to the front edge of the cover 20 along a fold line 13 and a cooperating slit 19 provided along the fold line 11 at the upper marginal edge of the front wall 14, serves to frictionally retain said cover in its closed position and effect the closure of the carton when it is being utilized as a shipping or storage receptacle. As is well known, a circular segment of the front wall 14 adjoining the aforesaid slit 19 may be removed to provide a finger recess 38 to facilitate gripping the tongue 22 and raising the cover 20 into its open position. Insofar as the structural features of the body section per se do not constitute a part of the present invention, it will be understood that the foregoing construction is merely illustrative and may be varied considerably utilizing any of the well-known means for fabricating a covered receptacle and effecting the closure thereof. The essence of this invention resides in the provision of a resiliently-expendable article-retaining tray member within such a container and the manner in which it is automatically actuated by the opening movement of the cover to expose the packed articles for ready access and display purposes as hereinafter described.

As shown in Figs. 2 to 4, a panel 12 is provided within the body section which panel is attached to and is preferably integral with the upper edge of the front wall 14 and extends therefrom to the corresponding edge of the back wall 18 where it is hingedly fastened by means of connecting tab 28 and fold line 17 to the inner face of the cover 20 adjacent its hinged juncture with said back wall as clearly shown in Figs. 2 and 4. The panel 12 is fabricated from relatively stiff fibrous material such as paperboard or the like and is foldable along a plurality of additional fold lines 17 and 17' which together with the aforesaid fold line extend transversely of the side walls and preferably parallel to said front and back walls so as to provide a resiliently expandable tray within the body section of the carton capable of being pivotally actuated by the cover 20. Said tray is suitably apertured to accommodate a plurality of articles, such as two rows of lamps 40, and is foldable in a manner such that it collapses together with said articles into completely recessed position within the body section when said cover is closed, and is automatically withdrawn therefrom and expanded into tilted relationship therewith when the cover 20 is opened.

According to the preferred form of the invention illustrated in the drawing, the carton is fabricated from a single piece of relatively stiff sheet material such as paperboard that has been cut and scored to provide a blank 10 of the character illustrated in Fig. 5. As shown, the blank 10 is divided by a series of transverse and parallel spaced score lines 11 into five rectangular sections which are serially arranged longitudinally of said blank and comprise, in the order of their appearance, the above-mentioned panel 12, front wall 14, bottom wall 16, back wall 18, and cover 20. The panel 12 is further divided by a second series of transverse parallel fold lines 17 and 17' (which may be formed by alternately cutting and scoring the blank 10 along lines parallel to the aforesaid score lines 11 as here illustrated) into a connecting tab 28, a pair of platforms 30 separated by a central portion 34 and a marginal portion 36 which, in conjunction with the aforesaid connecting tab, serve as spacing elements adapted to position said platforms predetermined distances from each other and the front wall 14 and back wall 18 (see Fig. 3) when the blank 10 is assembled into carton formation and the cover 20 is closed. Each of the platforms 30 are provided with a like number of apertures 32 adapted and serially arranged and spaced to interlockingly receive the basal end portions of a predetermined number of lamps 40 and thus provide means for retaining two rows of said lamps. As is well known in the art, the material bordering each of the apertures 32 may be split radially to facilitate the removal and re-insertion of the lamps without tearing the platforms 30.

A plurality of preformed laterally depending elements are provided along the sides of the blank 10 and hingedly connected to the adjoining main sections of the said blank by means of a pair of longitudinally spaced score lines 15 to form the paired tabular extensions 24, side flaps 25, and tuck flaps 26 referred to above. A slit 19 and conjoining finger recess 38 in the front wall 14 are appropriately disposed along the fold line 11 which joins the panel 12 with said front wall to receive a hinged tongue 22 which longitudinally depends from the front edge of the cover 20 along a score line 13 and thus provide the friction-lock arrangement described above for effecting the closure of the carton.

To assemble the carton, the blank 10 is progressively folded along the transverse score lines 11 and the panel 12 bent along the fold lines 17 and 17' and positioned inwardly of and between the front wall 14 and back wall 18 so that the connecting tab 28 is disposed adjacent the cover 20. The connecting tab 28 is then fastened, as by gluing, in overlapped relationship with the inner face of the cover 20 so that the edge of said connecting tab is substantially coincident with the fold line 11 con-

necting said cover to the back wall 18, as is illustrated in Figs. 2 to 4. After the ends of the blank 10 have been thus joined, the tabular extensions 24 and side flaps 25 are intumed and interlocked to form the aforementioned side walls thereby completing the assembly operation.

As will be noted in Figs. 2 to 4, the panel 12 when thus arranged and anchored constitutes the aforementioned resiliently-expandable cover-actuable tray member. The various portions of the panel 12 are appropriately configured and foldably connected one to another that the tray thus provided is collapsible into uniplanar relationship with the rows of lamps 40. As will be obvious, the inside dimensions of the body section are such that they exceed the outside dimensions of said tray and the lamps 40 carried by the platforms 30 when the tray and lamps are in collapsed uniplanar formation so that when the cover 20 is closed, the pivotal interaction between said cover and the panel 12 activates the tray formed from said panel in such a manner that it automatically collapses together with both rows of lamps 40 into completely recessed position within the body section of the carton. The panel 12 is adapted to collapse in such a manner that the platforms 30 are arranged in oppositely-disposed spaced relationship with respect to one another and in upstanding relationship with respect to the bottom wall 16 thereby swinging the rows of lamps 40 into uniplanar bulb-to-bulb oppositely-disposed relationship on the central portion 34 of the panel 12 when the cover 20 is closed, as shown in Fig. 3.

It should be noted that the width of the central portion 34 is such that when the rows of lamps 40 are in recessed position within the carton the bulbous portions thereof are separated by a distance sufficient to prevent the lamps from contacting one another and being accidentally broken should the carton be compressed laterally from front to back during shipment. Similarly, the dimensions of the connecting tab 28 and marginal portion 36 are so selected that these members serve as spacer elements which separate the platforms 30 from the front and back walls 14 and 18, respectively, distances sufficient to provide end chambers 35 and 39 (see Fig. 3) adapted to accommodate the basal end portions of the lamps 40 when the latter are disposed in recessed position by the tray.

Upon lifting the cover 20 from its closed position shown in Figs. 1 and 3 to its open position shown in Figs. 2 and 4, a combined swinging and hinging action is imparted to the panel 12 such that the tray formed therefrom is automatically withdrawn from the body section of the carton and expanded into tilted relationship therewith thereby tilting the rows of lamps 40 carried by the platform 30 adjacent the front wall 14 at an angle upwardly and away from said front wall where they are supported by the central portion 34 of said panel, and swinging the row of lamps 40 carried by the platform 30 adjacent the cover 20 and back wall 18 into generally upstanding and totally exposed relation with respect to said body section (as said lamp rows and carton elements are viewed in Fig. 4). Thus, the lamps 40 are automatically positioned in attractive display formation and exposed for convenient removal from and replacement into the carton when the latter is opened.

As shown in Figs. 2 and 3 and more particularly in Fig. 4, the fold line 17' which defines the inward edge of the lamp-retaining platform 30 adjacent the cover 20 and back wall 18 is spaced from the hinged juncture 11 between the last said members a distance such that the material along said fold line is progressively flexed in a direction opposite to its normal folding direction as the cover 20 is lifted and moved toward its open position. When the cover 20 is swung through an angle slightly greater than 90° into upstanding generally coplanar relation with the back wall 18 (as viewed in Figs. 2 and 4), the material along the fold line 17' is stressed in the

aforesaid opposite direction sufficiently to reverse the angle of bending thereat and cause this part of the panel 12, by virtue of the natural resiliency of the material from which the panel is fabricated, to be temporarily displaced or sprung along said fold line in the reverse angular direction (see Fig. 4) and thereby produce a toggle-like bracing action which automatically locks the cover 20 in its open upstanding position and said panel in its tilted expanded condition. The tray formed by the panel 12 and lamps 40 carried thereby are thus automatically retained in the aforementioned exposed display relationship with respect to the body section of the carton thus enabling said lamps to be conveniently removed from and replaced into the carton and permanently and positively converting said carton into an attractive point-of-purchase display assembly.

As will be apparent from the foregoing, the objects of the invention have been achieved insofar as a display carton has been provided which is not only simple and inexpensive to make and assemble but which automatically exposes the articles packed therein and locks them in attractive display formation when the loaded carton is opened.

While one specific embodiment of the invention has been described in detail by way of illustration and example for the purposes of clarity and understanding in accordance with the patent statutes, it is understood that various changes and modifications may be made without departing from the spirit and scope of the invention.

#### I claim:

1. A display carton fabricated from a unitary blank cut, scored and assembled to provide a bottom wall, front and back walls having depending portions which are interlocked one with another to form a pair of side walls arranged to define with said bottom, front and back walls a body section of rectangular configuration; a cover integral with and hinged to said back wall; and a panel of relatively stiff sheet material within said body section integral with the upper edge of said front wall and extending therefrom to the corresponding edge of said back wall; said panel being foldable along lines parallel to said front and back walls to provide a resiliently expandable tray; intermediate portions of said tray being apertured and foldable to form a pair of spaced platforms each adapted to receive and retain a predetermined number of articles; the end of said tray opposite said front wall being hingedly fastened to the inner face of said cover and the inside dimensions of said body section being greater than the outside dimensions of said tray and the articles carried by said platforms, when said tray is in collapsed condition, so that said tray is operable to be automatically collapsed together with the retained articles into completely recessed position within said body section when the cover is closed, and be automatically withdrawn from said body section and expanded into tilted relationship therewith when said cover is opened; the activation of said tray incident with the movement of said cover toward its open position being such that a part of said tray along an intermediate one of its fold lines is sprung in a direction opposite to its normal folding direction resulting in a bracing action that automatically locks said cover in its open position and said tray in its tilted expanded condition, thereby attractively displaying the articles carried by said platforms and facilitating their removal from said carton.

2. A display carton fabricated from a unitary paper-board blank cut, scored and assembled to provide a bottom wall, front and back walls and a pair of side walls arranged to form a rectangular body section, a cover integral with and hinged to said back wall, and a panel

integral with the upper edge of said front wall and extending therefrom interiorly of said body section to said back wall; said cover comprising one end of said blank and having tuck flaps and a tongue depending from its side edges and its front edge respectively; said panel comprising the other end of said blank and being foldable along lines parallel to said front and back walls to provide a resiliently expandable tray recessible within said body section and having intermediate and serially-apertured portions arranged to form, when said tray is in collapsed condition, a pair of spaced oppositely-disposed upstanding platforms adjacent said front and back walls and adapted to interlockingly receive the basal end portions of a predetermined and like number of lamps and thus provide means for retaining two rows of said lamps; said lamp-retaining platforms, when in recessed position within said body section, being spaced from said front and back walls and from each other distances sufficient to permit said rows of lamps to lie in uniplanar and oppositely-disposed but separated relationship with respect to one another on the central portion of said tray connecting said platforms and in completely recessed position within said body section; the upper marginal edge of said front wall being slit along the fold line thereat to receive the tongue depending from said cover, and said tuck flaps being adapted to slide inwardly of said side walls into said body section when the cover is closed to thus frictionally retain said cover in its closed position and provide means for effecting the closure of said carton; the end of said panel opposite said front wall being hingedly fastened to the inner face of said cover at a point such that the resultant pivotal interaction between said tray and cover produced by the movement of said cover automatically collapses said tray and the rows of lamps carried thereby into uniplanar and completely recessed position within said body section when the cover is closed, and automatically expands said tray and withdraws the lamps from said body section when said cover is opened; the expansion of said tray and resultant displacement of said platforms and rows of lamps carried thereby incident with the opening movement of said cover being such that the row of lamps adjacent the front wall is tilted at an angle upwardly and away from said front wall in supported contact with the central portion of said tray, and the row of lamps adjacent the back wall is swung into generally upstanding and totally exposed position with respect to said body section, thereby attractively displaying said lamps and facilitating their removal from said carton; the fold line defining the inward edge of the lamp-retaining platform adjacent said cover and back wall being spaced from the hinged juncture between said cover and back wall a distance such that the material along said fold line is flexed in a direction opposite to its normal folding direction as the cover is opened and the tray is pulled into expanded condition by said cover, until it is finally sprung in the said first direction to effect a bracing action that automatically locks said cover in its open position and maintains said tray and lamps in distended display relationship with said body section.

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UNITED STATES PATENT OFFICE  
CERTIFICATE OF CORRECTION

Patent No. 2,951,583

September 6, 1960

Stuart P. Sanford

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, line 66, for "expendable" read -- expandable --;  
column 3, line 42, for "paltforms" read -- platforms --.

Signed and sealed this 4th day of April 1961.

(SEAL)

Attest: ERNEST W. SWIDER

XXXXXXXXXX  
Attesting Officer

ARTHUR W. CROCKER  
Acting Commissioner of Patents