Feb. 5, 1952 N. J. WATSON ET AL 2,584,967

PACKAGING TRAY

Filed Aug. 26, 1949

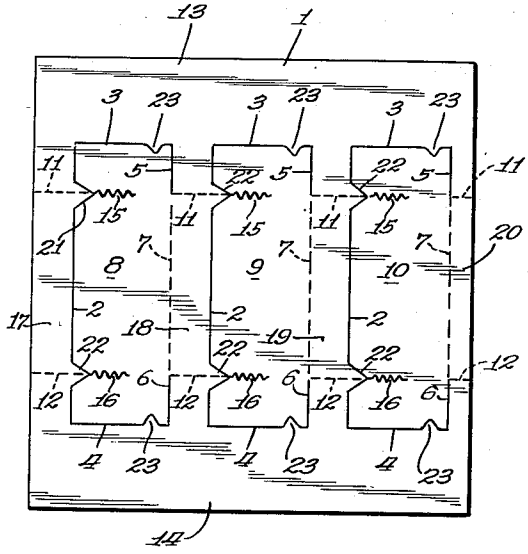

Fig. 1.

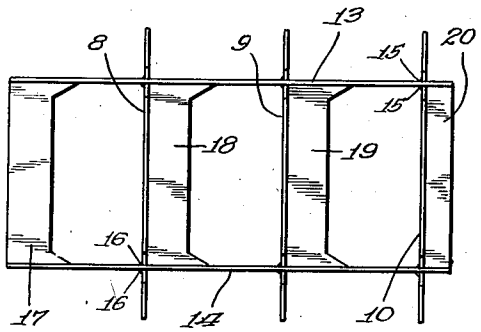

Fig. 2.

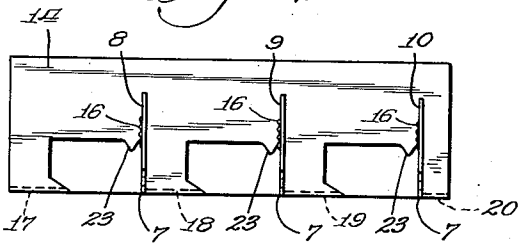

Fig. 4.

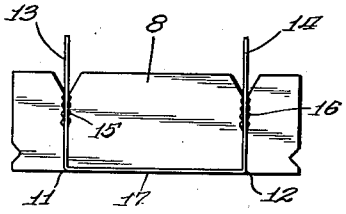

Fig. 3.

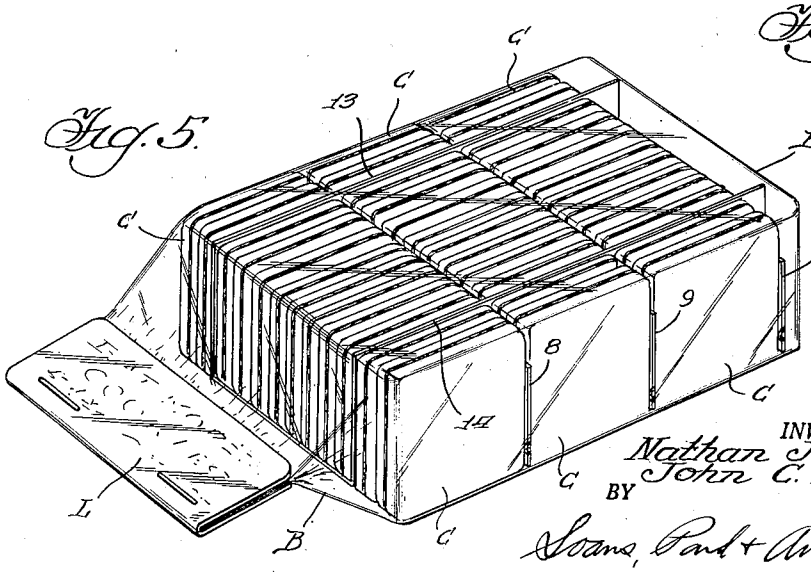

Fig. 5.

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Patented Feb. 5, 1952

2,584,967

UNITED STATES PATENT OFFICE

2,584,967

PACKAGING TRAY

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Application August 26, 1949, Serial No. 112,474

9 Claims. (Cl. 229—42)

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This invention relates to a packaging tray and more particularly, to a tray-like separator for packaging and holding merchandise in predetermined arrangement for enclosure in an outer, usually transparent wrapper, so that the goods are clearly displayed.

The main objects of the invention are to provide a packaging device of the character indicated which may be made by low-cost manufacturing operations; to provide such a device which will embody a simple rectangular blank of material, and which will not require the removal and wasting of any of the material; to provide a one-piece foldable tray structure whereby a plurality of compartments or divisions are formed for separating articles or groups of articles from each other while also holding such articles or groups of articles in the desired fixed relationship to each other; and to provide such a device which can be fabricated in flat sheet-like form and readily converted to tray form so that quantities of the device may be advantageously stored in flat, knock-down form and shipped in that form from the maker to the user.

Other objects and advantages of the invention will be understood by reference to the following specification and accompanying drawing in which there is illustrated a packaging tray structure embodying a selected form of the invention.

In the drawing,

Fig. 1 is a plan of a flat blank cut and scored so as to be foldable to form the desired tray structure;

Fig. 2 is a plan of the tray formed by folding up the blank of Fig. 1 along predetermined lines;

Figs. 3 and 4 are end and side elevations respectively, of the tray shown in Fig. 2; and

Fig. 5 is a perspective illustrating one form of a package which is adapted to be made with the illustrated tray structure.

The tray structure about to be described and shown in the drawing is made of foldable paperboard of a weight which will provide the desired degree of stiffness or rigidity to the package to be formed, and which will adequately support and protect the goods packaged therein. In this instance, the tray is designed for the packaging of bakery products such as sandwich-cookies, but other uses for the tray will appear and are within the scope of the invention.

The blank for forming the tray comprises a rectangular, in this instance a square blank 1, of suitable paperboard. This blank is slitted along spaced lines 2 extending across the blank in one direction and along transversely extending

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lines 3 and 4, the lines 3 and 4 extending respectively from the opposite ends of the lines 2 and terminating in short slits 5 and 6 which are parallel with the main slits 2. The short slits 5 and 6 are joined by fold lines 7 formed in any suitable manner as by creasing or scoring.

In this instance there are illustrated 3 sets of slit and score lines 2, 3, 4, 5, 6 and 7, and they respectively define panels 8, 9 and 10, which are foldable about the respective fold lines 7 from the normal plane of the blank 1 to upstanding, perpendicular relation thereto.

Longitudinally aligned fold lines 11 and longitudinally aligned fold lines 12 provided in portions of the blank intermediate adjacent panels 8, 9 and 10, and in the opposite marginal portions of the blank, are provided to facilitate folding of side panel portions 13 and 14 respectively, to upwardly extending, perpendicular relation to the normal plane of the blank. As shown, the fold lines 11 and 12 are spaced inwardly from the end-forming slits 3 and 4.

The blank is set up to form a tray by first folding the side panel portions 13 and 14 upwardly on the fold lines 11 and 12, and thereafter folding the panels 8, 9 and 10 upwardly on their respective fold lines 7. The panels 8, 9 and 10 are provided with slits 15 and 16 respectively, in alignment with the fold lines 11 and 12 so that when the panels 8, 9 and 10 are folded upwardly as aforesaid, overlying portions of the side panels 13 and 14 can be received in such slits 15 and 16. End portions of the panels 8, 9 and 10 outwardly of the slits 15 and 16 will, accordingly, extend beyond the folded-up side panels 13 and 14 as is clearly shown in Figs. 2 and 3. The relatively narrow transversely extending portions 17, 18, 19 and 20 of the blank consititute, in effect, bottom ledges for the compartments formed on opposite sides of the partitions 8, 9 and 10.

To facilitate setting up of the tray, V-shaped slits 21 and 22 are provided at the entrance ends of the slits 15 and 16 respectively, these V-shaped slits serving, when the panels 8, 9 and 10 are folded upwardly, to form funnel-like entrances to the slits 15 and 16. Because of these open-mouth entrances to the slits 15 and 16 it is not necessary that the side panels 13 and 14 be accurately positioned in their final position in order that the panels 8, 9 and 10 may be folded up. This flaring entrance to the slits 15 and 16 is of material aid in the operation of setting up the tray and, as shown, it is formed without removing any material from the blank since the

material which is, in effect, removed from the panels 8, 9 and 10 is permitted to remain attached to the bottom-forming ledges 17, 18 and 19. As shown, these V-shaped slits 21 and 22 interrupt the respective slits 2.

The slits 15 and 16 may be simple straight slits but it is advantageous to provide an undulating or saw-toothed shaped slit as shown, to the end that the panels 8, 9 and 10 will more effectively grip the respective side panels 13 and 14 when the blank is set up. This amplified grip of the panels 8, 9 and 10 on the side panels 13 and 14 may be further aided by providing detents or projections such as indicated at 23 on the lower edges of the side panels 13 and 14 immediately in front of the panels 8, 9 and 10 when they are set up. These ears 23 may conveniently be provided by making portions of the slits 3 and 4 V-shaped as shown in Fig. 1.

When the transverse partitions 8, 9 and 10 are folded up, the opposing teeth formed on these panels on opposite sides of the slits 15 and 16 will be more or less deformed by the entrance of the side panels 13 and 14 into the slits so that said teeth will exert a fairly strong grip on the side panels. These slit lines 15 and 16 are of such length that the ears 23 will also pass through the slits. Since the ears 23 do not remain between the teeth on opposite sides of the slits 15 and 16, one or two of the teeth at the bottom ends of the slits return substantially to their normal closed position as an incident to the inherent resiliency of the board material of which the tray is made. These closed-up teeth therefore extend across the adjacent edges of the ears 23 and constitute stops which provide further resistance to unfolding of the transverse partitions.

A tray set up as shown in Figs. 2, 3 and 4 may advantageously be employed by packaging a predetermined number of articles in the areas immediately in front of each partition 8, 9 and 10 and between the side partitions 13 and 14, and by positioning one or more articles outside of the side partitions 13 and 14 immediately in front of the projecting end portions of said transverse partitions 8, 9 and 10.

As represented in Fig. 5, two sandwich-cookies "C" are located outside of the respective partitions 13 and 14 immediately in front of the projecting end portion of the transverse partitions 8, 9 and 10, and eight such sandwich-cookies are packaged intermediate the side partitions 13 and 14 in front of each transverse panel 8, 9 and 10. An assemblage of articles such as the cookies "C" and the tray may be moved manually or automatically through a suitable guide into a wrapper such as a preformed bag "B" of transparent material, after which the initially open end of the bag may be closed, suitably sealed, and covered with a label "L" which is folded over the mouth end of the bag. The initially closed end or bottom of the bag is preferably of the square-end type so that the bag can initially be distended to freely receive the tray and its contents. The bottom ledge portion 20 and the adjacent end portions of the side partitions 13 and 14 are preferably seated on the bottom of the bag so that the content of the tray is spaced from the bottom of the bag and thereby protected from injury incident to handling of the completed package as, for example, in placing the packages in packing cases and in subsequent handling in the distribution thereof.

As will be apparent from an inspection of Fig. 5, the transverse partitions 8, 9 and 10 will be substantially invisible in the finished package excepting that the panel 10 will be visible from the bottom of the bag while only edge portions of the side panels 13 and 14 will be noticeable on one face of the bag if these panels are of a depth corresponding to the depth of the packaged product. If the packaged product is of a greater depth than the panels 13 and 14, the product will, when seated on the bottom ledges 17, 18 and 19, project upwardly beyond the upper edges of the panels 13 and 14 and thereby tend to more or less conceal such edges.

Packages made as described may advantageously be displayed either when on their sides as shown in Fig. 5, in a case, or by being hung on a rack from their label-closed ends.

The described tray structure may be made with ordinary box-making mechanisms and provides a simple one-piece partition tray structure which may be quickly set up when required for packaging purposes. Various changes in the details of the device may be made to adapt it for the packaging of various kinds and sizes of articles while retaining the principles of the invention.

We claim:

1. A partition tray comprising integrally connected side panels, bottom ledges and transverse panels, said side panels being foldably connected to the ends of said bottom ledges, and said transverse panels being foldably connected to the sides of said bottom ledges, said side and transverse panels being foldable from coplanar relation with said bottom ledges to angularly extending receptacle-forming relation thereto, said transverse panels having end portions projecting beyond the ends of said bottom ledges, and said transverse panels being provided with slits for receiving portions of said side panels.

2. A blank for forming a partition tray, said blank comprising a rectangular sheet member having slits and fold lines therein defining a plurality of bottom ledges, a pair of side panels foldably connected to said bottom ledges, and a plurality of transverse panels foldably connected to sides of said bottom ledges intermediate the ends thereof, said transverse panels projecting beyond the ends of said bottom ledges and having slits which receive portions of said side panels.

3. A blank for forming a partition tray, said blank comprising a rectangular sheet member having slits and fold lines therein defining a plurality of bottom ledges, a pair of side panels foldably connected to said bottom ledges and a plurality of transverse panels foldably connected to sides of said bottom ledges intermediate the ends thereof, said transverse panels having slit-formed end portions which project beyond the ends of said bottom ledges, the ends of said bottom ledges being formed by fold lines, said transverse panels occupying all of the blank material intermediate said bottom ledges and said side panels, said side and transverse panels having fold line connections with said ledges permitting folding of said panels to tray-forming position relative to said ledges.

4. A partition tray blank as set forth in claim 3 wherein the transverse panels are slitted to receive portions of the side panels when the blank is set up to form a tray.

5. A partition tray blank as set forth in claim 3 wherein the transverse panels are provided with slits adapted to receive portions of the side panels when the blank is converted into a tray and wherein said slits are provided with flared en-

trance openings for guiding the side panels into said slits.

6. A blank for forming a partition tray according to claim 3 wherein the side panels are provided with ears which project into the path of movement of the transverse panels to resist unfolding thereof when the blank is set up into a tray.

7. A tray blank comprising a sheet member having cuts and fold lines defining a pair of bottom panels, a partition panel intermediate said bottom panels, said partition panel having end portions which extend beyond the ends of said bottom panels, and a pair of side panels extending transversely of said bottom and partition panels, said partition panel having an edge hingedly connected to a side edge of one of said bottom panels and having the remainder of its periphery severed from the other of said bottom panels and from said side panels, and said side panels being respectively hingedly connected to the ends of said bottom panels, the aforesaid end portions of said partition panel being formed by portions cut out of said side panels.

8. A tray blank having cuts and hinge lines therein defining bottom, side, and partition wall panels, said side and partition wall panels being integrally hingedly connected respectively to relatively angularly disposed edges of said bottom panel, said partition wall panel having an end extension which projects beyond the hinge connection between said side wall panel and said bottom wall panel, said side and partition wall panels being foldable on their hinge connections with said bottom panel to angular positions relative thereto and relative to each other, and said partition wall panel having a cut therein intermediate said end extension and the remainder of said partition panel for receiving the thickness of said side wall panel when said side wall and partition panels are folded to said angular positions.

9. A tray blank comprising a sheet member having cuts and fold lines defining in the blank, a plurality of partition panels, a pair of side panels and a bottom, there being provided integral hinge connections between each of said side panels and edge portions of said bottom and between said partition panels and spaced edge portions of said bottom, the hinge connections between said partition panels and said bottom extending right angularly relative to those between said side panels and said bottom, and said partition panels having end portions which project distances beyond the hinge connections between said side panels and said bottom which distances are less than the distance between the side panels, said side panels being foldable on their hinge connections to right angular position relative to said bottom and having portions which then extend over said partition panels, and said partition panels being also foldable on their hinge connections to said bottom to angular position relative thereto and having slits for receiving the overlying portions of said side panels to hold the latter folded as aforesaid, the slit-formed edges of said partition panels being frictionally engageable with the portions of said side panels received in said slits to hold said partition panels folded as aforesaid.

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