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CONTAINERS

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2 Sheets-Sheet 2

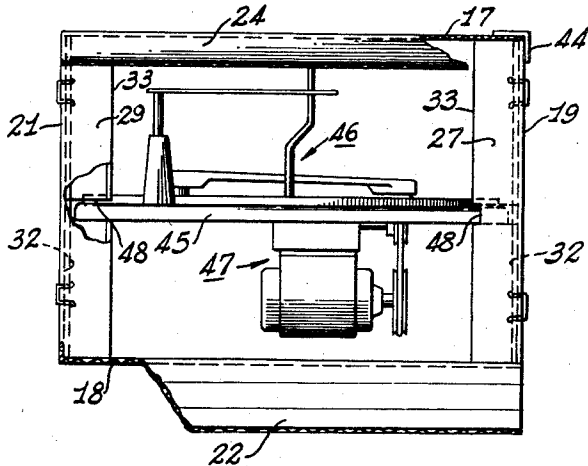


Fig. 4

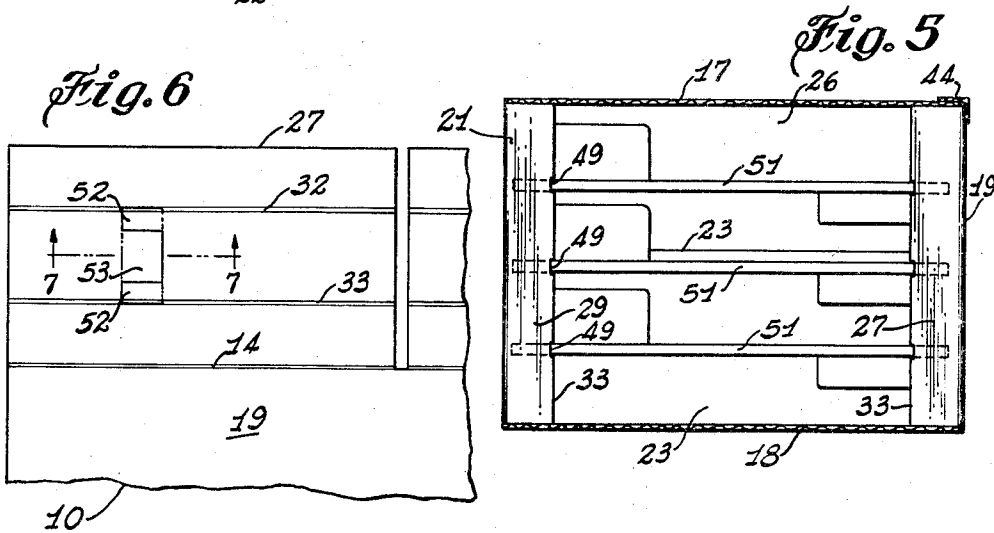


Fig. 6

Fig. 5

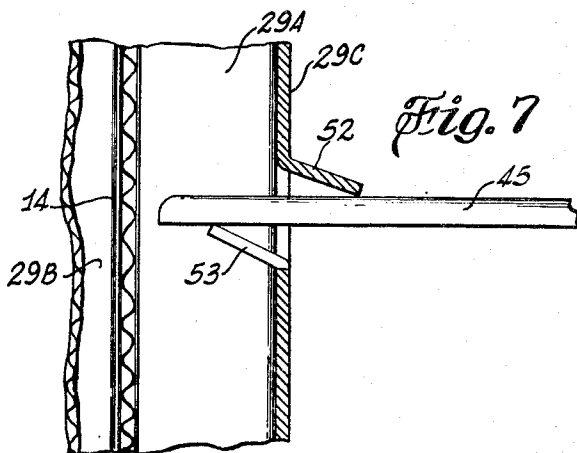


Fig. 7

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CONTAINERS

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2 Claims. (Cl. 229—16)

This invention relates generally to improvements in packaging and relates particularly to an improved carton, capable of withstanding loads incident to stacking of such cartons one on top of another.

One of the problems incident to packaging and shipping of certain articles of commerce is that the articles are incapable of withstanding loads occasioned by stacking of the containers containing such articles one on top of another. Certain kinds of fruits and vegetables, which bruise easily, are generally incapable of withstanding the loads incident to stacking, and the ordinary cardboard or corrugated carton has been incapable of transmitting the stacking loads, and consequently the contents thereof have been required to take a portion of such stacking loads with the attendant damage to the contents.

Record changing mechanisms are another example of articles of commerce which are incapable of withstanding loads as described above. Such mechanisms generally consist of a support plate with a turn table and record tripping mechanism mounted thereon, and a drive motor and record tripping cycling mechanism mounted on or suspended from the underside thereof. The record tripping mechanism and the record tripping cycling mechanism are not designed to withstand rough handling, and ordinarily some means must be devised for spacing the tripping and cycling mechanisms from the sides and top and bottom of their shipping containers.

Irrespective of what kinds of means have heretofore been employed for spacing such mechanisms from the top and bottom of their shipping containers, such means have ordinarily not lent to any ability of the container to withstand the loads incident to stacking the packed containers one on top of another, and the possibility of damaging the contents by such stacking has been a problem in handling and shipping of such mechanisms.

With the foregoing considerations in mind, it is the principal object of this invention to afford a construction for a shipping carton or the like, which carton is formed from a cut and scored blank, and folded to define a container characterized by corner stiffener members which are adapted to support the contents in spaced relationship from the top and bottom of the container, and which are adapted to transmit the loads incident to stacking without imposing any of the stacking load on the contents of the container.

Another object is to afford a container characterized by column-like stiffeners which are formed integrally with the container from a cut and scored blank, and which are so constructed as to transmit loads incident to stacking the formed-up and loaded container without imposing any of the stacking load on the contents of the container.

Other objects and important features of the invention will be apparent from a study of the following specification taken with the drawings which together illustrate a preferred embodiment of the invention and what is now considered to be the best mode of applying the principles thereof. The possibility of modifications in the particu-

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lar structures herein described without departing from the fundamental principles of the invention is recognized, and it is intended that the scope of the invention not be limited except as set forth in the subjoined claims.

5 In the drawings:

Fig. 1 is a plan view of a cut and scored sheet employed in forming a container according to the present invention;

10 Fig. 2 is a top view of the container according to the present invention, showing the mode of disposing an article of commerce therein, a portion of the top being broken away to show details of the integral corner stiffener structure;

15 Fig. 3 is a perspective view of a portion of the container of the present invention showing details of one of the corner stiffener members, and the details of a slot formed therein for supporting the corner of the base plate of a record changing mechanism;

20 Fig. 4 is a front view of the container looking in the direction of the arrows 4—4 of Fig. 2, showing the record changing mechanism supported in position, and showing the foreshortened end flaps for closing the container;

25 Fig. 5 is a view somewhat similar to Fig. 4 showing the construction of the corner stiffener members to support a number of articles;

Fig. 6 is a plan view of a portion of a cut and scored sheet showing a modified form of scoring the corner stiffener members; and

30 Fig. 7 is a section taken on the line 7—7 of Fig. 6 looking in the direction of the arrows.

Referring now particularly to Fig. 1 of the drawings, the improved shipping container according to the present invention is formed from a cut and scored sheet 10 made of corrugated paper, strawboard or other fiber material. The sheet 10 is scored along score lines 11, 12 and 13, and along score lines 14 and 16 to define top and bottom panels 17 and 18 and side panels 19 and 21.

35 The sheet 10 is slotted to define flaps which extend from the top, side and bottom panels 17, 18, 19 and 21, and as shown in Fig. 1 flaps 22 and 23 extend from the bottom panel 18, and flaps 24 and 26 extend from the top panel 17. Likewise, flaps 27 and 28 extend from the side panel 19, and flaps 29 and 31 extend from the other side panel 21.

40 The flaps 27, 22, 29 and 24 extending from the side, top and bottom panels are scored along spaced score lines 32 and 33 which extend for the length of the sheet 10, and are continuous except for the slots 34, 26, and 37 which are cut into the sheet 10 and which separate the flaps 27, 22, 29 and 24 from each other. The flaps 28, 23, 31 and 26 extending in the other direction from the side, top and bottom panels are likewise scored along spaced score lines 38 and 39 which extend for the length of the sheet 10 except for slots 41, 42 and 43 which are cut into the sheet 10, and which separate the flaps 28, 23, 31 and 26 from each other.

45 Referring now to Fig. 2, the cut and scored sheet 10 of Fig. 1 is folded along the score lines 11, 12 and 13 to define a container body 20 consisting of the top panel 17, side panels 19 and 21 and the bottom panel 18. As shown in Figs. 2 and 4 the top panel 17 and the side panel 19 are joined together by a gummed tape 44 preferably made of fabric as shown.

50 According to the present invention the flaps 27 and 28 extending from the side panel 19 and the flaps 29 and 31 extending from the side panel 21 are adapted to be folded along the score lines to define corner stiffening members having a triangular cross section and so constructed and arranged that the ends of the stiffening members thus formed are in bearing contact with the top and bottom panels 17 and 18 so that the loads incident to stacking of the container body 20 may be transmitted

by means of the corner stiffening members and without the necessity of the contents of the container body to contribute in any fashion to the transmittal of such stacking loads.

Referring particularly to Fig. 2, the flap 27 is thus folded on its score lines 14, 33 and 32 to define a corner stiffener member having such bearing contact with the top panel 17 and the bottom panel 18. The corner stiffening member thus formed consists of three legs or elements, a leg 27A being stitched or stapled, as shown in Fig. 2, to the side panel 19 as by any convenient fastening device 27D. A leg 27B is thus formed and is defined by the score lines 14 and 33, and lies in the plane containing the continuous score line 14 on the one end of the container body 20. A third leg 27C is defined by the score lines 33 and 32, and as seen in Fig. 2 presents a vertical plane which is inclined to the vertical plane of the side panel 19.

The flap 29 is folded in a fashion similar to the flap 27, and when thus folded to define a corner stiffening member of triangular cross section, includes a leg 29A which is stitched or fastened to the side panel 21 as by the fastener 29D. The corner stiffening member thus formed includes a leg 29B which lies in the plane containing the continuous score line 14 of the end of the container body 20.

The flaps 22 and 24 are folded on their score lines 14, and it will be seen that the flaps 22 and 24 provide a closure for one end of the container body 20. It will also be apparent that the legs 27B and 29B provide supports for the sides of the flaps 22 and 24 when bearing against the legs 27B and 29B.

The flaps 28 and 31 extending respectively from the side panels 19 and 21 at the other end of the container body 20 are likewise adapted to be folded on their score lines 38 and 39 to define corner stiffening members similar to those formed by the folding of the flaps 27 and 29 just described. The flap 28 is thus folded to provide a leg 28A which is stitched or stapled to the side panel 19. The folding of the flap 28 thus also defines a leg 28B lying in the plane containing the score line 16 of the other end of the container body 20. Legs 28A and 28B are continuous with the other leg 28C, the vertical plane of which is inclined with respect to the vertical plane of the side panel 19.

The flap 31 is likewise folded along its score lines 16, 38 and 39 to define legs 31A, 31B and 31C corresponding to the legs of the other stiffener members.

The flaps 23 and 26 are folded on their score lines 16 to provide a closure for the other end of the container body 20, and it will be seen that the legs 28B and 31B provide supports for the sides of the flaps 23 and 26.

It is preferable that the flaps 22 and 24 be of such dimension that they will overlap each other a desired amount in forming the closure, and so that when folded on their score lines 14 they may be held in position bearing against legs 27B and 29B by gummed tape or by any other suitable means. The flaps 23 and 26 are likewise of such dimension as to be folded into overlapping relationship against the legs 28B and 31B and likewise may be secured in position by gummed tape.

The corner stiffening members which have just been described in some detail thus provide a means of transmitting the loads induced by stacking of the packed container without imposing any load on the merchandise packed within the container. As explained, the ends of the corner stiffening members are in bearing contact with the inner surfaces of the top panel 17 and the inner surfaces of the bottom panel 18, and it will be seen that the rigidity of the corner stiffening members will thus provide a container capable of withstanding higher loads than has been possible heretofore. It will thus be apparent that the container thus far described is capable of packaging fruit such as peaches and plums, which are easily bruised, in such a fashion that the so-packaged

fruit is not required to withstand any load incident to stacking their containers one on top of another, the corner stiffening members alone being capable of transmitting the loads incident to such stacking.

The container according to the present invention is especially applicable to the packing of mechanisms supported upon a plate or base and having apparatus both mounted on said base and also depending from said base. Record changing mechanisms are examples of such apparatus, and as shown in Fig. 4 may include a support plate or base 45 having a turn-table and record tripping mechanism indicated generally at 46 mounted thereon, and a drive motor and record tripping cycling mechanism indicated generally at 47 depending from the support plate 45. According to the present invention, flaps 27, 29, 28 and 31 are provided with slots 48 which are preferably cut into said flaps in the same operation whereby the cut and scored sheet 10 is made. As seen in Fig. 3, the leg 29C is thus provided with the slot 48 to afford a point of support for the corner of the base or support 45. The legs 27C, 28C, and 31C are likewise slotted to provide points of support for the other corners of the base or support 45. It will thus be seen by reference to Fig. 4 that the record changing mechanism illustrated is supported only at the corners of the base or support 45 and that the record tripping mechanism 46 and the drive motor and record tripping cycling mechanism 47 are entirely spaced from the top panel 17 and the bottom panel 18. It will of course be obvious that the load incident to stacking the cartons according to the present invention will be transmitted by the corner stiffening members and that likewise the load of the record changing mechanism will be transmitted into the same corner stiffening members, and that the tripping and cycling mechanisms will not be subject to any loads incident to the stacking of the cartons one on top of another.

Referring now to Fig. 5, there is shown another embodiment of the invention whereby each of the corner stiffening members is provided with a plurality of slots 49 whereby the stiffening members provide points of support for a number of support plates 51 or support bases stacked one on top of another. As with the record changing mechanisms, the support plates 51 may have parts mounted thereon and also depending from the lower side thereof.

Referring now to Figs. 6 and 7, there is shown another embodiment of the invention whereby the flaps 27, 29, 28 and 31 may be so die cut as to afford tabs 52 and 53, which when bent out in the manner shown in Fig. 7 would define a slot or opening for the corner of the plate 45. The bent out tabs 52 and 53 exert a certain amount of pressure on the plate 45 and tend to prevent the movement thereof in the slot defined by the bent out tabs 52 and 53.

Thus has been described a needful and useful improvement in constructing a container from a cut and scored sheet. It will be appreciated that the container according to the present invention is formed from a single sheet and that the corner stiffening members can be formed without the necessity of first fabricating the stiffening members separate and apart from the cut and scored sheet. The corner stiffening members also afford a support for the carton flaps in providing a closure for the ends of the container. Although the foregoing description of the invention is necessarily of a detailed nature in order to completely set forth the invention, it is to be understood that the specific terminology employed is not intended to be restricting or confining, and it is to be further understood that various re-arrangements of parts and modifications of structural detail may be resorted to without departing from the scope or spirit of the invention as herein claimed.

I claim:

1. A container having means for providing good stacking strength; said container being formed from a rectan-

gular sheet of material provided with first score lines comprising three spaced score lines parallel to an edge of said sheet and to each other and second score lines comprising six spaced parallel score lines perpendicular to said first score lines and arranged in two groups of three lines each, said groups being disposed adjacent opposite edges of said sheet, said sheet also being provided with slots extending inwardly from each of said opposite edges along lines coinciding with said first score lines to a depth corresponding to the innermost line of each said group, said slots and innermost score lines defining eight flaps of substantially equal width, and said innermost score lines defining between themselves two side panels and a top and a bottom panel; said sheet being bent at right angles along said first score lines into rectangular cross section and the flaps at each end of said top and bottom panels being bent at right angles along said innermost score lines toward each other; the flaps extending from each end of said side panels being bent along the three score lines of each said group of score lines to form four vertical corner stiffening members of triangular cross section, one in each of the four vertical corners of said container; each of said corner stiffening members extending the full height of said side panel and having the ends thereof in bearing contact with said top and bottom panels; the side of each of said triangular stiffening members between the innermost and middle lines of said groups of score lines lying in a plane which is coincident with the plane defined by the ends of said side panels; the side of each of said triangular stiffening members between the middle and outermost lines of said group of score lines being folded back at an acute angle toward its associated side panel; and the side of each of said triangular stiffening members between the outermost line of said group of score lines and the associated edge of said sheet being folded back at an acute angle and lying along and being secured to its associated side panel and extending toward and terminating adjacent said innermost score line.

2. A container having means for providing good stacking strength and wherein said means also provides a means for supporting an article of commerce in spaced relationship from the sides, top and bottom of such container; said container being formed from a rectangular sheet of material provided with first score lines comprising three spaced score lines parallel to an edge of said sheet and to each other and second score lines comprising six spaced parallel score lines perpendicular to said first score lines and arranged in two groups of three lines each, said groups being disposed adjacent opposite

edges of said sheet, said sheet also being provided with slots extending inwardly from each of said opposite edges along lines coinciding with said first score lines to a depth corresponding to the innermost line of each said group, said slots and innermost score lines defining eight flaps of substantially equal width, and said innermost score lines defining between themselves two side panels and a top and a bottom panel; said sheet being bent at right angles along said first score lines into rectangular cross section and the flaps at each end of said top and bottom panels being bent at right angles along said innermost score lines toward each other; the flaps extending from each end of said side panels being bent along the three score lines of each said group of score lines to form four vertical corner stiffening members of triangular cross section, one in each of the four vertical corners of said container; each of said corner stiffening members extending the full height of said side panel and having the ends thereof in bearing contact with said top and bottom panels; the side of each of said triangular stiffening members between the innermost and middle lines of said groups of score lines lying in a plane which is coincident with the plane defined by the ends of said side panels; the side of each of said triangular stiffening members between the middle and outermost lines of said group of score lines being folded back at an acute angle toward its associated side panel and provided with a slot therein to provide spaced points of support for an article of commerce; and the side of each of said triangular stiffening members between the outermost line of said group of score lines and the associated edge of said sheet being folded back at an acute angle and lying along and being secured to its associated side panel and extending toward and terminating adjacent said innermost score line.

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