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CARTON AND LINER THEREFOR AND METHOD OF USING THE SAME

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Fig. 1.

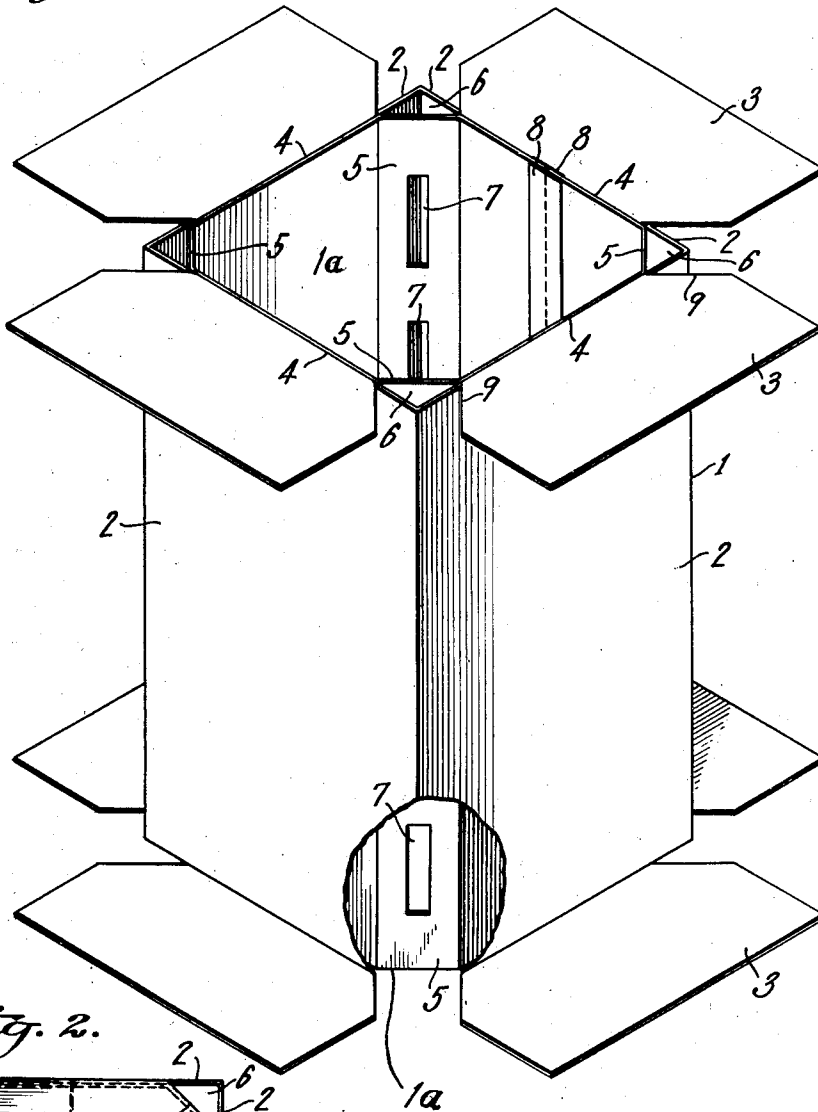
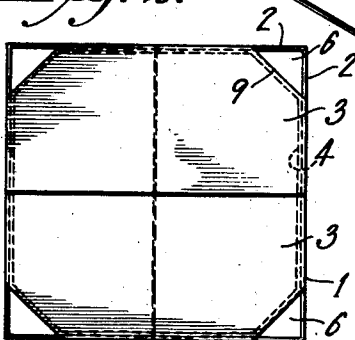


Fig. 2.



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CARTON AND LINER THEREFOR AND
METHOD OF USING THE SAMEHenry Kondolf, New York, N. Y., assignor to
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13 Claims. (Cl. 229—14)

My invention relates to the art of packaging and shipping fruit, vegetables, and other commodities, more particularly produce of a perishable nature, and to cartons and liners therefor useful in this art.

As is well-known, in packaging fruit, vegetables, and other perishable produce it is necessary to provide for ventilation of the contents of the carton, which ventilation should extend as far as possible into the interior of the package.

It is also highly desirable that such means for ventilation as are provided in cartons of this character shall be so constituted that when a considerable number of the cartons are placed together, as in shipment or in storage, ventilation of the contents of the cartons will not be interfered with.

It is therefore an object of my invention to provide a carton of the character indicated and for the purpose set forth which shall provide means for ventilating or permitting access of air to the contents of the package.

A second object of my invention is to provide a carton which shall be strong and simple of manufacture, as well as capable of retaining its strength under moist conditions.

A further object of my invention is to provide a carton and a method of using the same which shall be of a special advantage, in packaging fruit or the like, both immediately after picking or collecting the same and in the final shipping stage.

My invention has for further objects such other specific advantages and improvements as may hereafter be found to obtain.

My invention contemplates the provision of a carton comprising an outer casing adapted to form a receptacle and having a plurality of side members, usually four, forming at least a partial enclosure, together with an inner lining for said casing of such configuration as to conform generally to the outer casing, but having re-entrant portions adapted to provide open ventilating spaces between said outer casing and said lining.

Preferably the liner is so constituted with respect to the casing that the ventilating spaces thereby formed extend throughout substantially the entire length of the carton as a whole, and the carton is provided with end closures having openings which coincide with the open ends of said ventilating spaces. Preferably such end closures are comprised of flaps connected to and forming extensions of the sides of said casing and having re-entrant or cut-out portions adapted to coincide with the re-entrant portions of said liner

when said flaps are bent to complete the closure.

Preferably, also, my invention contemplates the provision of openings in the re-entrant side portions of the liner, whereby access of air to the interior of the liner is insured.

In order that my invention may be more clearly set forth and understood, I now describe with reference to the drawing accompanying and forming a part of this specification, a preferred form and manner in which my invention may be embodied and practiced, but without limiting my invention to the specific details illustrated therein. In this drawing,

Fig. 1 is a perspective view of a carton constructed in accordance with my present invention, the end closures of said carton being shown in an open position; and

Fig. 2 is an end view of the carton shown in Fig. 1, said end closures being in this instance bent to complete the closure of the carton.

Similar reference numerals designate similar parts in both of the views of the drawing.

Referring now to the drawing, there is illustrated a carton consisting of a casing 1 having a plurality of sides 2. The sides 2 are ordinarily of quadrilateral configuration, and in the specific instance illustrated in Fig. 1 are rectangular. In this instance there are four of the sides 2 and each of the sides 2 is provided with end flaps 3 at both ends thereof. The end flaps 3 are adapted to be bent at right angles to the sides 2, as shown in Fig. 2, to complete the enclosure partially formed by the sides 2.

Within the enclosure formed by the sides 2 there is provided a liner 1a, which in this instance is of somewhat irregular octagonal shape, having four relatively large sides 4 and four relatively small sides 5. The small sides 5 are adapted to assume a position other than a right angle to the sides 2 of the casing 1 and thus provide re-entrant portions or ventilating spaces 6 between the corners of the casing 1 and the liner 1a. Preferably the spaces 6 extend throughout the entire length or substantially the entire length of the carton as a whole, and preferably the sides 5 of the liner are provided with one or more openings 7 adapted to provide for free ingress and egress of air between the interior of the liner 1a and the ventilating spaces 6.

Preferably the casing 1 and the liner 1a are each formed from a single blank. In the preferred form illustrated in Fig. 1, the join of the liner occurs along a median line of one of the sides 4, fastening strips or tabs 8 being employed at this point to fasten together the two edges of

the side 4 in which the join occurs. Similar fastening means (not shown) may be provided for the casing 1.

In the preferred instance, the flaps 3 are each of such size as to extend across approximately one-half of the open end of the casing 1 when bent into the position in which they are shown in Fig. 2, and each of the flaps 3 is formed with a re-entrant or cut-out portion 9 adjacent to the fold between the flaps 3 and the corresponding side 2 of the casing 1. The re-entrant portions 9 are adapted to coincide with the re-entrant portions of the liner and thus, when the flaps 3 are bent as shown in Fig. 2 to complete the closure of the carton, the open ends of the ventilating spaces 6 are not blocked, but remain open to permit free access of air to the contents of the carton.

It will be immediately obvious to those familiar with the art that the specific example described hereinabove and illustrated in the drawing is susceptible of considerable modification in detail without departing from the essential teaching of my invention. Thus, various types of end closures may be employed; for example, end closures entirely separate from the sides of the casing 1 might be provided at one or both ends of the carton, should this be desirable, and instead of re-entrant portions in the flaps 3 holes or openings of various sizes and shapes might be substituted therefor, the same being true of the openings 7. Moreover, the number of sides of the carton may be increased or reduced as desired, and the locations of the re-entrant portions of the liner 1a may be varied or changed in configuration to suit individual requirements.

Preferably the liner 1a is not fastened to the casing 1 but is of such size as to form a good friction fit with the latter, but it may be fastened to the casing 1, if so desired.

My carton may be constructed of any suitable material, but is especially adapted to be constructed of paper, fibre or the like, and I prefer to employ what is generally known as double-faced corrugated kraft board. Moreover, I prefer to treat the material comprising the liner 1a with a suitable waterproofing agent, such for example as asphaltum, whenever protection against dampness is desirable. When the liner 1a has been thus treated, the carton resists such dampness as is apt to be encountered in the refrigerating cars in which shipment is made, and the carton as a whole is thereby prevented from softening and sagging which might otherwise take place.

It will be obvious that my carton has numerous advantages not possessed by cartons heretofore known in the art, in addition to providing for very thorough ventilation of the interior contents of the carton when the same is placed alone or being handled. My invention also provides for adequate ventilation of the contents of a plurality of such cartons when stored together irrespective of how the cartons are arranged or how closely they are placed together, this being of considerable advantage when it is realized that in shipping cartons very little care is ordinarily taken to provide for ventilation through the arrangement of the cartons.

It will be obvious that, according to my invention, placing a number of the cartons together, whether side by side or one above the other, will not seriously interfere with the ventilation of the contents of any of the individual cartons.

My carton has a further great advantage in

that the liner and casing, due especially to the re-entrant portions of the liner, which are preferably located, as stated above, at the corners thereof, together form a structure of very high mechanical strength, offering unusual resistance to crushing even under very heavy loads.

My invention makes it possible to effect unusual economies in the entire operation of supplying the cartons to the shipper, picking and preparing the fruit, and finally packaging the same for shipping, and my invention, therefore, additionally contemplates a novel method of preparing fruit or the like for shipment, which will now be described.

As is well known, it is customary for fruit pickers to employ so-called field boxes in which the fruit is placed as it is picked and in which the fruit is delivered to the sizing and washing machines. Ordinarily after the fruit has been prepared it is placed in cartons or other packages bearing no relation to the field boxes employed in the picking operation.

According to my invention, however, the carton supplied to the fruit grower includes the casing 1 which is to serve as the ultimate shipping package as well as the liner 1a. This makes it possible to employ the casing 1 as a substitute for the usual field box with the very great advantage that adequate ventilation of the fruit between the time it is picked and the time it reaches the grading and washing machines is insured.

Preferably also the casing 1 is adapted to be filled eventually with relatively small dispensing cartons in which the fruit is to be sold to the retail customer, the casing 1 serving as a convenient shipping carton for these dispensing cartons. Dispensing cartons of an especially suitable character for this purpose are described and claimed in my prior U. S. Patent No. 1,741,369, granted December 31, 1929, and in my co-pending application Serial No. 631,647 filed September 3, 1932.

According to my present method, the ventilated carton, consisting of the casing 1 and the liner 1a, is used as a substitute for the field box, the fruit being placed in the interior of the carton as it is picked.

Subsequently, the fruit is removed, graded and cleaned, and the selected fruit is packed in small dispensing cartons which are then placed within the casing 1 for shipment, the liner 1a having been removed in the meantime.

I have found that it is possible to so construct the liner that the difference between the bulk capacity of the combined casing and liner and the bulk capacity of the casing without the liner corresponds to or compensates for the volume difference between the fruit as picked and the fruit as ultimately packaged in the dispensing cartons.

Thus, by way of specific instance, the casing 1 when an appropriate liner 1a has been placed therein may have a capacity of say 46 lbs. of a given fruit, such as oranges. It is found that after cleaning, grading and selecting the fruit, only about 40 lbs. out of the original 46 lbs. go to the retail consumer. According to my invention the difference in the bulk volume between the fruit as picked and the fruit as packaged in the small dispensing cartons is compensated for by adjusting the size of the ventilating spaces 6, these being made larger or smaller as necessary.

It will be obvious that the method I have just described, and the regulation of the proportions of the casing 1 and the liner 1a, are of great

practical advantage and importance, both from the standpoint of the quality of the fruit and from the standpoint of convenience in handling and shipping both the empty and the filled cartons.

My invention is not limited to the specific details of the illustrative examples set forth hereinabove but is broadly to be construed as of the scope of the claims hereinafter made.

1. A carton for packaging fruit and other commodities which comprises, in combination, an outer casing comprising a plurality of side members and a bottom therefor and an inner lining thereof of such configuration as to conform to that of the outer casing and having re-entrant portions extending through substantially the entire length of the outer casing and adapted to provide open ventilating spaces between said outer casing and said lining throughout their lengths.

2. A carton for packaging fruit and other commodities which comprises, in combination, an outer casing comprising a plurality of side members forming at least a partial enclosure and an inner lining thereof of such configuration as to conform to that of the outer casing and having re-entrant portions extending through substantially the entire length of the same and adapted to provide open ventilating spaces between said outer casing and said lining, and end members associated with said casing for completing the enclosure formed thereby and having openings adapted to coincide with the ends of said spaces.

3. A carton for packaging fruit and other commodities which comprises, in combination, an outer casing comprising a plurality of side members and a bottom therefor and an inner lining of substantially the same length as said outer casing and of such configuration as to conform to that of the outer casing and having re-entrant portions adapted to provide open spaces between said outer casing and said lining throughout their lengths, said re-entrant portions having openings to permit circulation of air between said spaces and that portion of the enclosure lying within said lining.

4. A carton for packaging fruit and other commodities which comprises, in combination, a receptacle having a plurality of rectangular sides forming a partial enclosure, a plurality of partitions forming re-entrant spaces within said partial enclosure, and end members adapted to complete said enclosure, at least one of said members having openings adapted to coincide with said re-entrant spaces to permit ventilation therethrough.

5. A carton for packaging fruit and other commodities which comprises, in combination, a receptacle having a plurality of rectangular sides forming a partial enclosure, a plurality of perforated partitions forming re-entrant spaces within said partial enclosures, and end members adapted to complete said enclosure, at least one of said members having openings adapted to coincide with said re-entrant spaces to permit ventilation of the contents of the enclosure there-through.

6. A carton for packaging fruit and other commodities which comprises, in combination, a receptacle having a plurality of rectangular sides forming a partial enclosure, a plurality of partitions forming re-entrant spaces within said partial enclosure, and end members at least one of which is adapted to form an end closure for said receptacle without blocking access of air to all of said re-entrant spaces.

7. A carton for packaging fruit and other com-

modities which comprises, in combination, a receptacle having four rectangular sides adapted to form a partial enclosure, inner partitions forming re-entrant spaces in the angles formed by said sides, which spaces extend throughout at least a substantial portion of the length of said receptacle, and end members for said enclosure having openings adapted to coincide with the ends of said re-entrant spaces when said end members are in position to complete the enclosure of said receptacle.

8. A carton for packaging fruit and other commodities which comprises, in combination, a receptacle having four rectangular sides adapted to form a partial enclosure, inner partitions forming re-entrant spaces in the angles formed by said sides, which spaces extend throughout at least a substantial portion of the length of said receptacle, and a plurality of end members adapted to complete said enclosure and having re-entrant portions adapted to coincide with said re-entrant spaces, thereby permitting access of air thereto.

9. A carton for packaging fruit and other commodities which comprises in combination, an outer casing having a plurality of quadrilateral sides forming a partial enclosure, a lining thereof of such configuration as to conform closely to that of said outer casing but having perforated re-entrant portions adapted to provide ventilating spaces in the angles formed by the quadrilateral sides of said outer casing, and a plurality of flaps connected to said sides at at least one end thereof adapted to complete said enclosure but having re-entrant portions adapted to coincide with the ends of said re-entrant spaces when the enclosure is completed.

10. A carton for packaging fruit and other commodities, which comprises a plurality of quadrilateral sides adapted to form a receptacle open at the ends, an end closure comprising flaps forming extensions of at least one of said sides and adapted to be bent at right angles thereto and having re-entrant portions adjacent thereto to provide ventilating openings for said receptacle when closed, and a removable lining for said receptacle comprising a plurality of sides closely conforming to the configuration of said receptacle but having re-entrant portions forming ventilating spaces between said receptacle and said lining, the ends of said spaces being adjacent to the ventilating openings formed by the re-entrant portions of said flaps.

11. A carton for packaging fruit and other commodities, which comprises a plurality of quadrilateral sides adapted to form a receptacle open at the ends, and end closure comprising flaps forming extensions of at least one of said sides and adapted to be bent at right angles thereto and having re-entrant portions adjacent thereto to provide ventilating openings for said receptacle when closed, and a removable lining for said receptacle comprising a plurality of sides closely conforming to the configuration of said receptacle and having re-entrant portions forming ventilating spaces between said receptacle and said lining, the ends of said spaces being adjacent to the ventilating openings formed by the re-entrant portions of said flaps, the re-entrant portions of said lining being perforated to permit access of air to the interior of the enclosure formed by said lining and said flaps.

12. A carton for packaging fruit and other commodities, which comprises, in combination, an outer casing having four sides at right angles

to each other and a bottom therefor, and a liner
of substantially the same length as said outer
casing having four sides forming a structure
closely fitting the outer casing, and having four
intermediate sides disposed at other than a right
angle to the sides of said liner and adapted to
form ventilating spaces between said casing and
said liner throughout their lengths at the junctures
of the several sides of said casing, said intermediate
sides having perforations therein to permit
access of air to the space between the sides
of said liner.

13. A carton for packaging fruit and other commodities, which comprises, in combination, an
outer casing having four sides at right angles to

each other, forming at least a partial enclosure,
and a liner therefor having four sides adapted
to form a structure closely fitting the outer casing,
and having four intermediate sides disposed
at other than a right angle to the sides of said
liner and adapted to form ventilating spaces between
said casing and said liner at the junctures
of the several sides of said casing, said intermediate
sides having perforations therein to permit
access of air to the space between the sides of
said liner, and end closures for said casing having
openings positioned to provide access of air
to said ventilating spaces.

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