Nov. 2, 1943. K. K. NEWSOM 2,333,116

EGG CRATE

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Fig. 1.

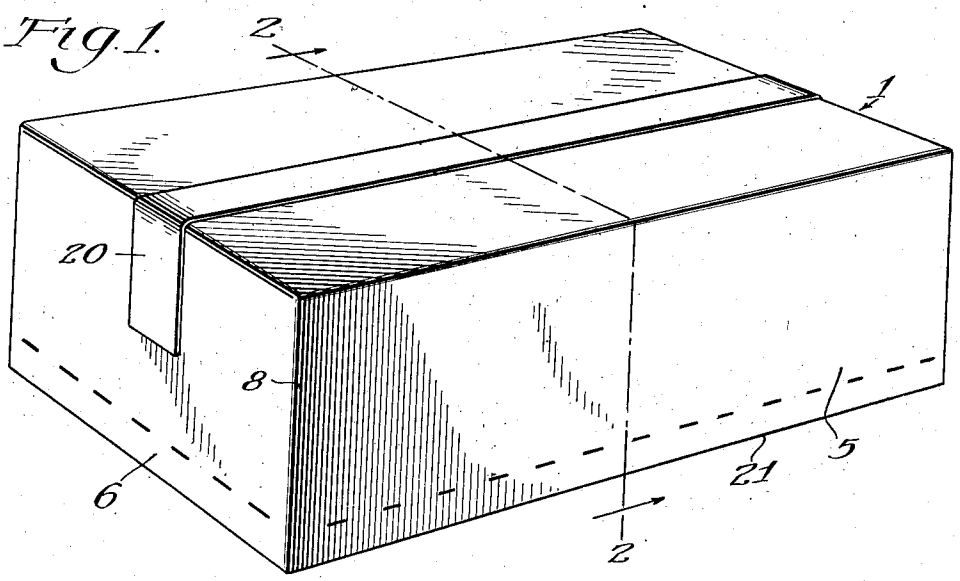
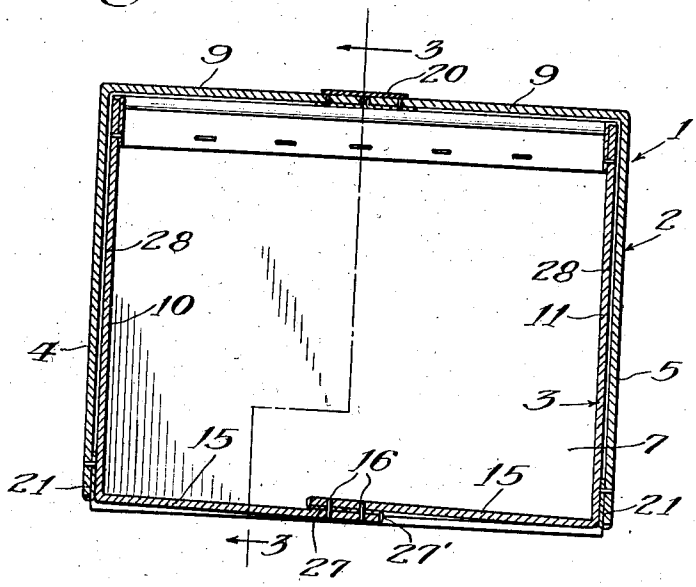


Fig. 2.



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Fig. 3.

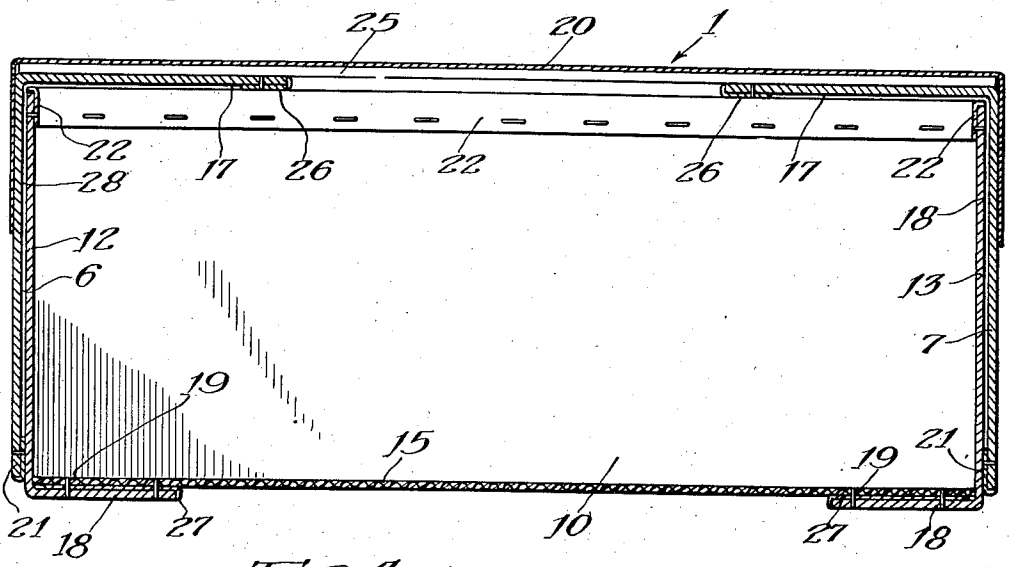


Fig. 4.

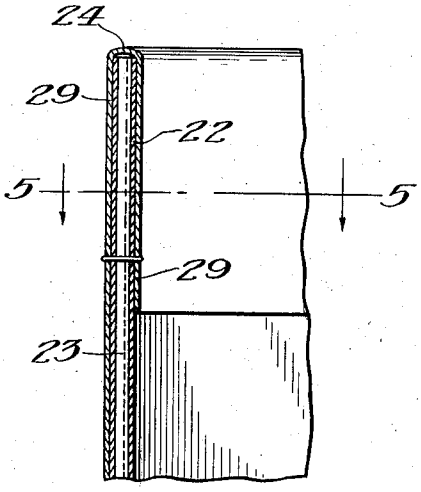
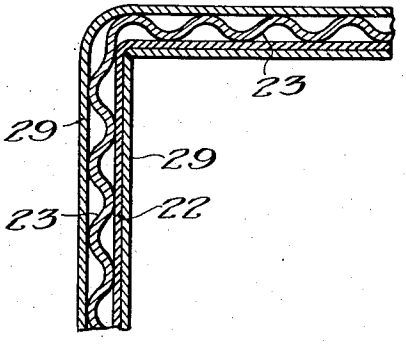


Fig. 5.



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UNITED STATES PATENT OFFICE

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EGG CRATE

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Application July 23, 1940, Serial No. 347,065

4 Claims. (Cl. 229—43)

This invention relates to improvements in cartons, packing cases or crates, and refers particularly to cartons, packing cases or crates constructed of corrugated fibrous board which are especially resistant to moisture, and is a continuation-in-part of my co-pending application, Serial No. 119,570, filed January 8, 1937.

Corrugated fibrous board used for the manufacture of certain types of cartons, packing cases, containers or crates usually comprise a filler or corrugated layer or layers, lined on the outer faces by sheets of paper. The paper lining employed is usually of a dense, tough variety of paper and although it is not waterproof it is exceedingly water resistant. The corrugated fillers, however, are usually constructed of a relatively bulky absorbent stock such as straw board or the like which is highly permeable with respect to moisture.

Containers constructed of this type board are very frequently used in extremely moist atmospheres, and although the liners serve to some extent to prevent the passage of the moisture through the board, the corrugations very quickly become soggy and limp due to the fact that the moisture enters the interior of the board through the edges thereof, particularly those edges at right-angles to the length of the corrugations. Of course, when the corrugations thus become limp, the board as a whole loses much of its structural strength and collapses in service.

Such a condition is particularly acute in the use of corrugated fibrous board for egg crates. Such board is especially adaptable for egg crates particularly from the aspect of handling and shipping because of its insulating and cushioning properties. However, when the eggs are maintained in cold storage, the moist atmosphere of the refrigerated compartment very quickly saturates the corrugated fillers resulting in the collapsing of the walls of the container.

One of the important features of my invention resides in an egg carton, crate or container construction comprising corrugated board wherein the corrugations are protected or sealed from the influences of the atmosphere.

Other objects and advantages of my invention will be apparent from the accompanying drawings and following detailed description.

In the drawings—

Fig. 1 is a perspective view of an egg carton constructed of corrugated fibrous board.

Fig. 2 is a transverse sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a longitudinal sectional view taken on line 3—3 of Fig. 2.

Fig. 4 is an enlarged detailed sectional view of one of the folding seals.

Fig. 5 is a sectional view taken on line 5—5 of Fig. 4.

Referring in detail to the drawings, 1 indicates a fibrous crate for the packing of eggs. The crate 1 is constructed in two sections, an upper or outer section 2 and a lower or inner section 3. The upper or outer section 2 originally comprises a blank of fibrous corrugated board suitably cut and scored to provide outer side walls 4 and 5 and outer end walls 6 and 7 of the container, the various walls being joined at the scored corners, 8. The blank is scored along the upper longitudinal edges defining the walls 2 and 3 to provide hingedly connected longitudinal flaps 9 which are adapted, in use, to be folded toward each other.

The lower or inner section 3 is likewise constructed from a blank corrugated fibrous board suitably cut and scored to provide inner side walls 10 and 11, and inner end walls 12 and 13, the various walls being joined at scored corners as indicated at 14 in Fig. 5. The lower edges of the side walls 10 and 11 are scored to provide longitudinal flaps 15 which, in use, are folded toward each other. The flaps 15 overlap at their outer edges and are stapled or otherwise secured together as indicated at 16 in Fig. 2.

The end walls 6 and 7 of the upper or outer section 2 are joined by scoring to end flaps 17 which, in use, are confined beneath the side flaps 9. The end walls 12 and 13 of the inner or lower section 3 terminate in end flaps 18 which, as will be hereinafter described, overlap the side flaps 15 and are stapled or otherwise secured thereto, as indicated at 19 in Fig. 3.

In use the side flaps 15 and end flaps 18 stapled thereto form the bottom of the crate 1, and the upper or outer section is adapted to telescopically engage the walls of lower section 3, the side flaps 9 serving as the top of the crate. In packing the crate, eggs, 30 dozen being standard for a crate, are packed in the lower or inner section 3, the eggs being carried by suitable fillers and flats (not shown). When the lower section has been filled, the outer section 2 is telescopically slid over the lower section, the flaps 17 and 9 folded inwardly and the latter flaps secured together by means of an adhesive strip 20. The crate is then in condition for handling, shipping and storing.

The blanks comprising both the sections 2 and 3 are so cut, scored and folded with respect to

the flutes or corrugations of the board that the length of the corrugations of the walls and ends of the sections runs vertically, and the length of the corrugations of the flaps, both end and side, run at right angles to the lines of juncture of the flaps with the respective ends and sides. Heretofore, in forming cartons, crates or other containers from corrugated board, the cut edges of the blanks were left open, permitting ingress of moisture laden air between the fibrous liners of the boards. The moisture soon rendered the absorbent corrugations limp thereby diminishing the strength of the board.

As a feature of my invention, the terminal edges of the corrugated walls, flaps, etc., that is, those edges at right angles to the length of the corrugation, comprise extensions of one of the liners, preferably that liner which forms the outer face of the board. Thus the corrugations and one linear face at the end in question are overlapped by the opposed liner such as the outer liner 29 which extends beyond the corrugation ends. The extending portion of the liner is folded over the ends of the corrugations and secured to the face of the board by means of staples, adhesive or other suitable means. Obviously, the folded liner, the liners having water resistant characteristics, seals the ends of the corrugations against the ingress of moisture laden air.

Thus the outer liner extending from the lower defining edges of the walls 4, 5, 6 and 7, is folded over inwardly, as indicated at 21 in Figs. 2 and 3, and the inwardly folded portions stapled or otherwise secured to the inner surfaces of the walls. As is hereinbefore described, the flutes or corrugations run vertically in the walls and consequently the overfolding of the outer liner extension thereof at 21 seals the wall corrugations and prevents the ingress of moisture laden air through the bottom edges of the walls.

Similarly, the outer liner extension at the upper defining edges of the inner walls 10, 11, 12 and 13 are folded inwardly and are stapled or otherwise secured to the inner faces of the walls as indicated at 22 in Figs. 2, 3 and 4. Thus the upper edges of said inner walls are sealed. It will be seen by reference to Fig. 4 that each corrugation 23 runs transversely to the line of fold 24 and that the spaces between adjacent flutes are effectively sealed. In like manner the edges of the flaps 9 are sealed by the overfolds 25, and the end flaps 17 are sealed by the overfolds 26.

The outer liner extension of the ends of end flaps 18 of the lower or inner section 3 are also overfolded as at 27, thereby providing a seal for the flutes of walls 12 and 13. In addition said folded portions, being at the bottom of the crate serve as cushions therefor or spacers for spacing the side flaps 15 comprising the bottom from a plane support for the crate. The terminal edges of the side flaps 15 are likewise provided with outer liner extensions which are also overfolded as indicated at 27' to seal the flutes or corrugations of the flaps 15.

It will be noted that by the provision of the overfolds 21 the wall 4 is somewhat spaced from the wall 10, the wall 5 from the wall 11, the wall 6 from the wall 12, and the wall 7 from the wall 13. When fragile articles such as eggs are carried in the crate or particularly when eggs are packed as closely together as close to the walls of the container as is the practice, impacts with the walls of the crate may tend to damage the eggs. However, by the provision of the space 28 together with the folded member 21, an air cushion is formed since the folded member 21 serves as a seal for the air space 28 at its lower end, and although the crate is not intended to be airtight, the air within the crate and in the spaces 28 is sealed to the extent that air, driven from the space 28 by an impact upon the walls, for instance, encounters resistance in being displaced and consequently functions as an air cushion. In this manner additional protection is afforded to the contents of the crate.

In view of the fact that crates 1, when shipped or stored, are stacked one on top of the other, it is essential that the side and end walls of the crate be exceedingly strong and that strength is preserved under all conditions. Hence, it is essential that the wall flutes be sealed from moisture laden air. Accordingly, if desired, only the reverse folds 21 and 22 may be provided which directly seals the wall flutes, or, if an exceedingly economical construction is desired, only the folds 21 may be utilized inasmuch as the upper edges of the inner section walls are within the crates they will, to a degree, be protected from excessive moisture.

I claim as my invention:

1. A crate comprising two sections constructed of corrugated board, one of said sections comprising side walls and a bottom, and the other of said sections comprising side walls and a top, the last mentioned of said sections being adapted to embrace the first mentioned section in a telescopic manner with the respective side walls of each section disposed adjacent each other, the length of the corrugations of the walls of said embracing section being at right angles to the top, the bottom portion of the walls of said embracing section being formed of outer liners extended and folded over to seal the lower ends of said corrugations, means for securing said extended and folded outer liner portions to the opposed liner faces of said walls, the outer liner formed on the lower ends of said walls of said top section being adapted to abut against said walls of said bottom section to hold said inner and outer walls in spaced relation with respect to each other, thereby forming an air cushion between said inner and outer walls.

2. A crate comprising two sections constructed of corrugated board, one of said sections comprising side walls and a bottom and the other of said sections comprising side walls and a top, the last mentioned of said sections being adapted to embrace the first mentioned section in a telescopic manner with the respective side walls of each section disposed adjacent to each other, the length of the corrugations of the walls of said embracing section being at right angles to the top, the bottom portion of the walls of said embracing section comprising liners extending from the outer face thereof reverse folded over the lower ends of said corrugations, means for securing said reverse folded portions to the inner faces of said walls, the outer liner formed on the lower ends of said walls of said top section being adapted to abut against said walls of said bottom section to hold said inner and outer walls in spaced relation with respect to each other, thereby forming an air cushion between said inner and outer walls.

3. A crate comprising two sections constructed of corrugated fibrous board, one of said sections comprising side walls and a bottom and the other of said sections comprising side walls and a top, the last mentioned of said sections being adapted

to embrace the first mentioned section in a telescopic manner in respect to side walls of each section disposed adjacent each other, the length of the corrugations of the walls of said sections being disposed respectively at right angles to said bottom and top, the bottom portion of the walls of said embracing section and the top portion of the walls of said embraced section comprising one extended liner reverse folded to seal the ends of said respective corrugations, means for securing said portions in folded position, the outer liner formed on the lower ends of said walls of said top section being adapted to abut against said walls of said bottom section to hold said inner and outer walls in spaced relation with respect to each other, thereby forming an air cushion between said inner and outer walls.

4. A crate comprising two sections constructed of corrugated fibrous board, one of said sections comprising a blank cut and scored to form side walls, end walls, side flaps and end flaps, said side flaps and end flaps being jointed to form a bottom, another of said sections comprising a blank cut and scored to form side walls, end walls, side flaps and end flaps, said side flaps and end flaps being joined to form a top, said sections being telescopically associated to form a completely enclosed crate, the blanks being so cut that the length of the corrugations of the side walls run vertically and the length of the corrugations of the flaps run inwardly with respect to the vertical center of the crate, all of the cut edges of said blanks being formed with one of the liner faces thereof of greater length than the filler and opposed liner and reverse folded to seal the ends of the corrugations, means for securing the said extended and folded liner in folded position against said opposed liner, the outer liner formed on the lower ends of said walls of said top section being adapted to abut against said walls of said bottom section to hold said inner and outer walls in spaced relation with respect to each other, thereby forming an air cushion between said inner and outer walls.

KITCHENER K. NEWSOM.