

April 23, 1968

R. W. NERENBERG ET AL
CARTON FOR FRAGILE ARTICLES

3,379,362

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2 Sheets-Sheet 1

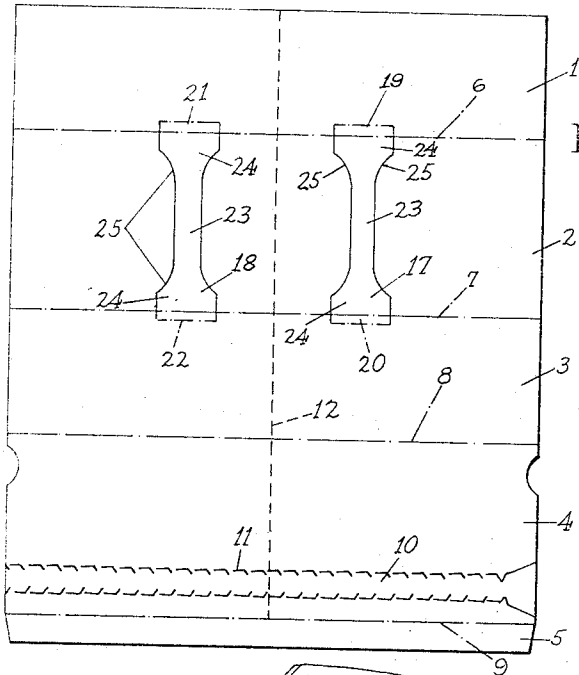


Fig. 1

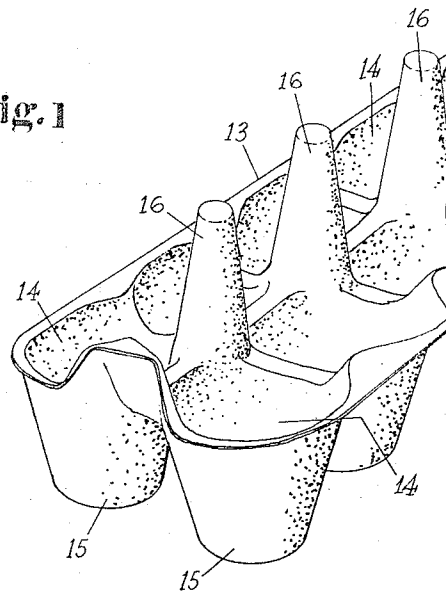


Fig. 2

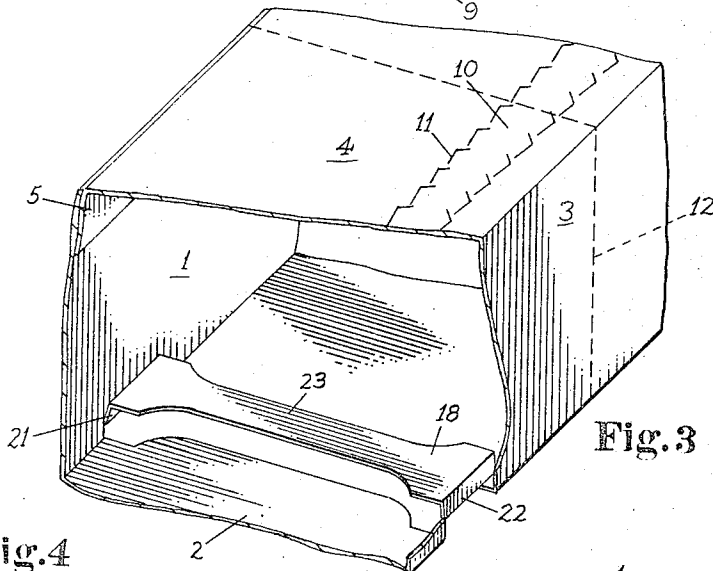
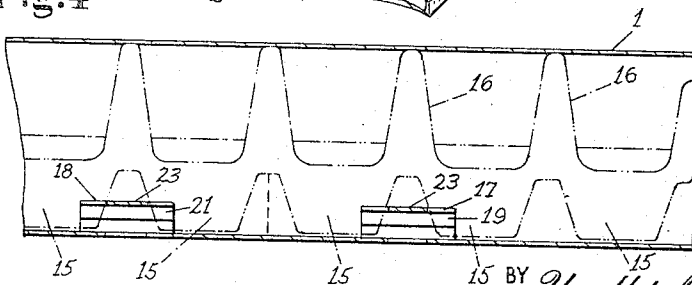


Fig. 3

Fig. 4



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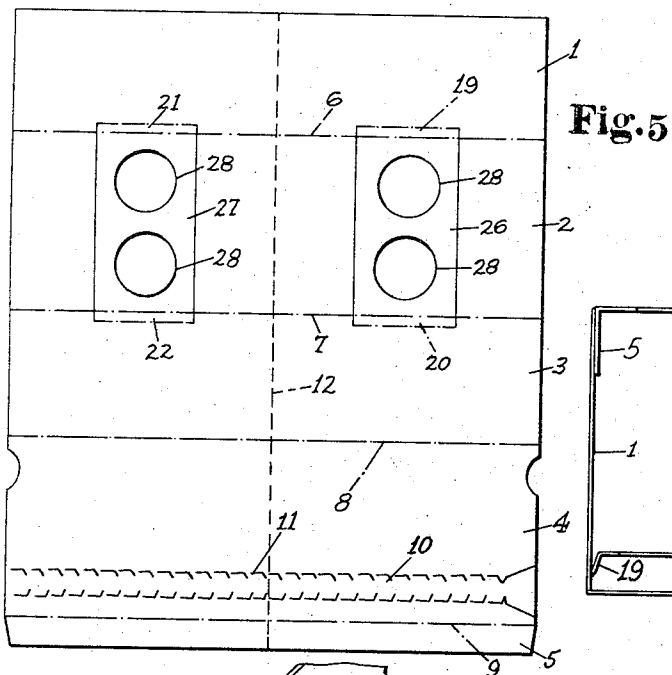


Fig. 5

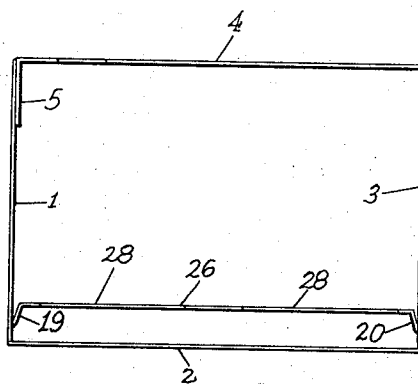


Fig. 6

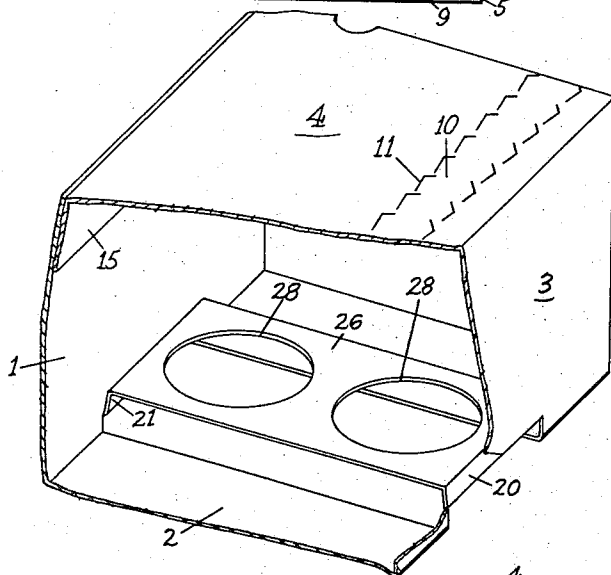


Fig. 7

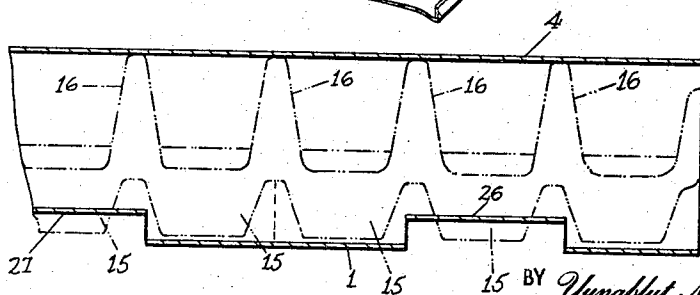


Fig. 8

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CARTON FOR FRAGILE ARTICLES

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ABSTRACT OF THE DISCLOSURE

A carton structure for fragile articles, such as eggs, comprising a tubular container and a filler inserted in the tubular container from one end thereof, the filler having a plurality of upwardly opening cup-shaped article receiving cells arranged in side-by-side relation, the bottom of the container having at least one locking strap struck therefrom which is hingedly connected to the opposing side walls of the container, the locking strap being displaceable upwardly from the plane of the container bottom wall and having openings therein of a size to receive the lowermost end portions of the cup-shaped cells of the filler.

This invention relates to cartons for fragile articles, such as egg cartons, in which the articles are packed in compartments, and has to do more particularly with cartons of the type comprising an outer tubular container and an inner cellular structure which is inserted into the tubular outer container from an end thereof.

The carton of the instant invention employs an inner cellular holder or molded filler of one-piece construction wherein the eggs are held in rows extending longitudinally of the holder, with a plurality of integral spacing members projecting upwardly intermediate the rows of cells for contact with the top forming wall of the surrounding tubular sleeve. It should be understood from the outset that the inner compartmented egg holder or filler is of known character and as such is not a part of this invention, except as a cooperating element with the surrounding tubular sleeve. In fact, the provision of a surrounding tubular sleeve for a compartmented filler is not per se novel; but rather the instant invention concerns itself with the provision of an improved outer container or sleeve incorporating novel locking means formed in its bottom which coact with the cup-shaped cells or compartments in the filler to prevent the filler from sliding out through either end of the outer container.

A principal object of the instant invention is to provide a knock-down outer container which may be made rapidly and will require only the simplest manipulation by the user to erect it and effect locking engagement between the outer container and a filler inserted therein.

A further object of the instant invention is the provision of an outer container of the character described which is provided with a simple and yet highly effective locking means for engaging and retaining a cellular filler within the container, the locking means being of such character that they may be readily formed from the bottom wall of the outer container and moved from an inoperative to an operative position by a simple manipulation which may be readily performed by automatic equipment.

Still a further object of the instant invention is the provision of locking means for a carton structure of the character described which is of simple yet rugged construction and which is devoid of freely extending flaps and the like which are both difficult to fold and to maintain against accidental displacement.

The foregoing, together with other objects of the instant invention which will appear hereinafter or which will be apparent to the skilled worker in the art upon reading

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this specification, are accomplished by those constructions and arrangements of parts of which certain exemplary embodiments shall now be described.

Reference is now made to the accompanying drawings 5 wherein:

FIGURE 1 is a plan view of an outer container incorporating one form of locking means in accordance with the instant invention.

FIGURE 2 is a perspective view of a cellular holder 10 or filler of the type with which the instant invention is adapted to be used.

FIGURE 3 is an enlarged fragmentary perspective view with parts broken away illustrating one of the filler locking means in its position of use.

FIGURE 4 is a vertical sectional view taken through the length of the assembled carton structure illustrating the manner in which the locking members engage between adjoining cells to lock the filler in place.

FIGURE 5 is a plan view similar to FIGURE 1 illustrating an alternative embodiment of the invention.

FIGURE 6 is a vertical sectional view taken transversely of the assembled carton structure illustrating the manner in which the cells of the filler are engaged by the locking members.

FIGURE 7 is an enlarged fragmentary perspective view with parts broken away illustrating the locking members of FIGURE 5 in their operative position.

FIGURE 8 is a longitudinal vertical sectional view illustrating the manner in which the locking members of 30 FIGURES 5 and 7 engage about the bottoms of the cup-shaped compartments in the filler.

Referring first to FIGURE 1 of the drawings, the outer container is composed of a one-piece blank having a side wall 1, a bottom wall 2, a side wall 3, a top wall 4 and a glue flap 5 in side-by-side articulation in the order named, the side walls 1 and 3 being hingedly connected to bottom wall 2 along the lines of fold 6 and 7 with the top wall hingedly connected to side wall 3 by line of fold 8 and the glue flap 5 connected to the top wall by line of fold 9. Preferably the top wall 4 will be provided with a tear strip 10 which may be conveniently defined by so-called button-hook perforations 11; and where the carton structure is intended to contain one dozen eggs, it is customary to divide the carton structure 45 transversely by a line for severance 12 by means of which the carton may be divided into two parts.

The blank just described may be conveniently tubed by infolding top wall 4 along line 8, followed by the infolding of side wall 1 along line 6, thereby juxtaposing the outermost edge of side wall 1 to the attachment flap 5. It will be understood, of course, that adhesive will be applied either to the attachment flap 5 or to the portion of side wall 1 contacted thereby, thereby forming a longitudinal seam by means of which the parts are joined together to form a tubular seam. It will be evident that the tubular seam so formed may be readily erected by squaring the opposing side walls, whereupon the cellular holder or filler 13, seen in FIGURE 2, may be readily inserted in the tubular container from either end thereof. The filler 13 is of molded or pressed construction, usually being formed from boxboard pulp, the filler having longitudinally extending rows of compartments or cells 14 which are of cup-shaped configuration, usually with essentially flat bottom portions 15. The length of the filler will be substantially equal to the length of the body walls of the tubular container, its width will be substantially equal to the width of the erected container, and the upwardly projecting fingers or spacers 16 will be of a height to contact the top wall of the container when the bottoms of the cells 15 are seated on the bottom wall. The filler is thus braced on all sides when inserted in the container body,

and the container body serves as a surrounding shield for eggs cradled in the cells.

In accordance with one embodiment of the invention, the filler is locked against axial displacement relative to the tubular container by means of the locking straps 17 and 18 struck from container bottom wall 2, the straps extending the full width of the bottom wall and being hingedly connected at their ends to displacement tabs 19, 20 and 21, 22 formed in and hingedly connected to the opposing side walls 1 and 3. Preferably, the locking straps will have narrow central portions 23 of a size to extend between adjoining cells in the filler, the straps terminating outwardly in enlarged end portions 24 having curved edges 25 corresponding to the outer surface configuration of the cells 14. The orientation of the straps 17 and 18 lengthwise of the tubular container is such that they will lie between adjoining pairs of the cells on each side of the line for severance 12 when the carton structure is assembled, so that in the event the carton structure is broken in half along the line for severance 12, a locking strap will be provided for each half.

The locking straps are engaged with the filler by deflecting them inwardly to the position illustrated in FIGURE 3, wherein it will be seen that the tabs 21 and 22 have been folded inwardly and juxtaposed to the inner surfaces of side walls 1 and 3, respectively, with the locking strap displaced upwardly so as to lie above the plane of the bottom wall. As will be seen in FIGURE 4, this results in the engagement of the central portions 23 of the straps 17 and 18 between adjoining pairs of the cells 15; and the filler is thereby effectively locked against axial displacement. It is not necessary to adhere the tabs 19, 20 and 21, 22 to the side walls of the container since they are held in the infolded condition by the locking straps themselves which span the width of the container; however, if desired, the user may unlock the straps in the event it is desired to remove the filler without severing the longitudinal tear tab 10.

Referring now to FIGURE 5 of the drawings, there is illustrated a modification of the invention wherein, for purposes of simplicity, like parts have been given like reference numerals. The only material difference lies in the configuration of the locking straps which, in this instance, comprise relatively wide straps 26 and 27 having cutouts 28 therein which are of a size and configuration to surround the bottom portions of the cup-shaped cells 15 when the locking straps are displaced inwardly to their operative position. The resultant action will be apparent from FIGURE 8 wherein it will be seen that the lowermost portions of the cup-shaped cells 15 project downwardly through the openings in the locking straps and hence are securely held against axial displacement of the filler. As in the case of the embodiment of the invention illustrated in FIGURE 1, the locking straps may be readily displaced inwardly from the plane of the container bottom wall, pivoting about the flaps 19, 20 and 21, 22; and the location of the straps will be so chosen that the openings 28 will lie in alignment with the cells of the filler when the latter is seated in assembled position within the tubular container.

As should now be apparent, the instant invention pro-

vides a simple and yet highly efficient locking device for the filler which acts to secure the filler against axial displacement; and this is true even should the carton assembly be divided into two parts. The locking straps are in effect integral structures free from projecting tabs and the like which could be readily deflected or torn off, as has been characteristic of the prior art structures.

Modifications may be made in the invention without departing from its spirit and purpose, and consequently it is not intended that the invention be limited in any manner excepting as set forth in the claims which follow.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. In a carton structure comprising a tubular container having top, bottom and opposing side walls, and a filler inserted in said tubular container from one end thereof, said filler having a plurality of upwardly opening cup-shaped article receiving cells therein arranged in side-by-side relation in two longitudinally extending rows, the improvement which comprises a locking strap for locking said filler against axial displacement relative to said tubular container, said locking strap being struck from the bottom wall of said tubular container and of a length substantially equal to the width of said bottom wall, attachment tabs hingedly connected to the opposite ends of said locking strap, said attachment tabs being formed in said opposing side walls and hingedly connected thereto so as to be displaceable inwardly and upwardly to lie along the inner wall surfaces of said side walls, whereby said locking strap is displaced upwardly from the plane of said bottom wall, said strap member having a pair of openings therein of a size to receive the lowermost end portions of a side-by-side pair of said cells and being positioned relative to the cup-shaped cells in said filler so as to enter into locking engagement with wall surfaces thereof upon its upward displacement from the plane of said bottom wall.

2. The carton structure claimed in claim 1 wherein said container body is provided with a pair of said locking straps lying on opposite sides of a transverse center line in said carton structure.

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