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EGG CARTON AND LABEL

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FIG. 1

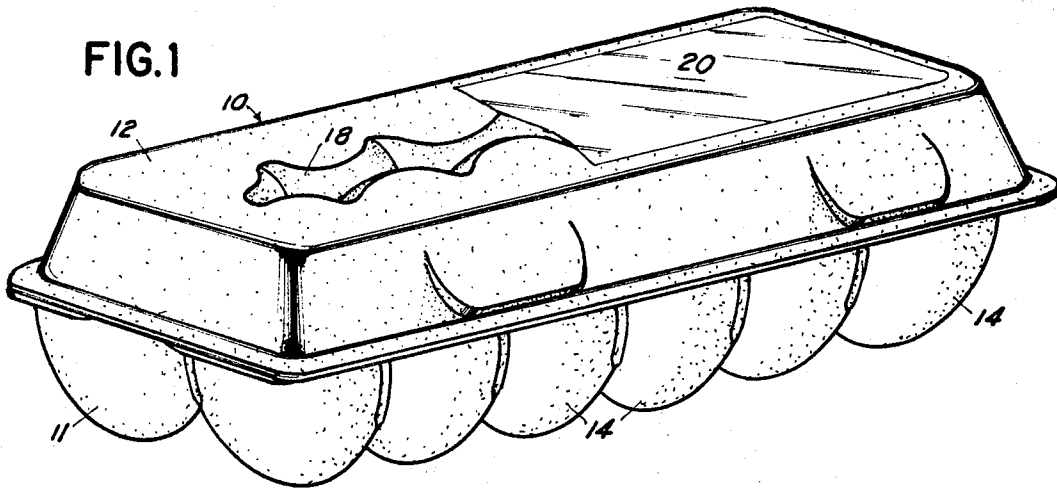


FIG. 2

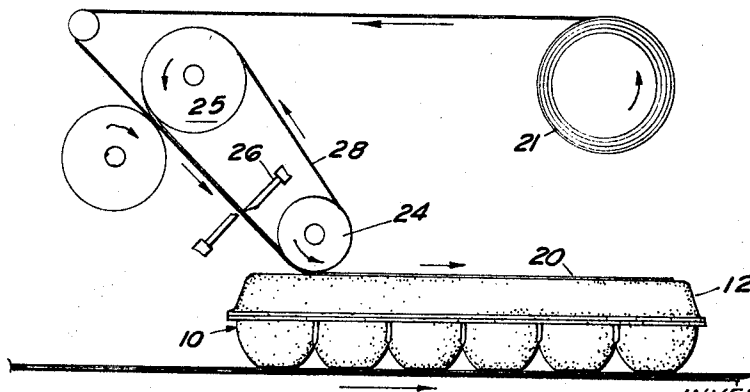
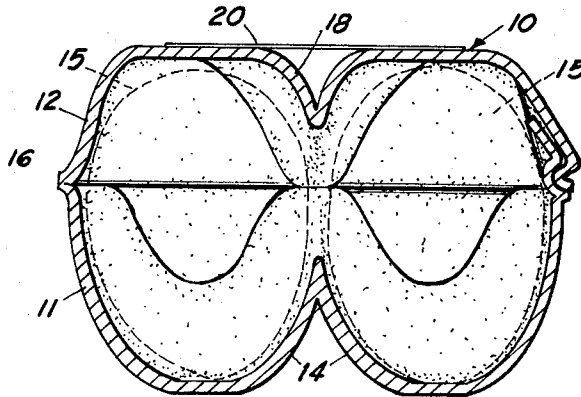


FIG. 3

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EGG CARTON AND LABEL

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ABSTRACT OF THE DISCLOSURE

Egg carton and label wherein the carton is fabricated of molded pulp or plastic and shaped to conform to the shape of eggs. The cover portion of the carton is hinged along one of its edges to the lower portion of the carton, and the cover portion defines a recess along its exterior center portion so that its interior portion divides the eggs from one another. A thermoplastic label is applied to the exterior surface of the cover portion, over the recess. The thermoplastic label is shrunk onto the surface of the carton, thus imparting strength characteristics to the cover portion so that it resists the bending and torsional forces experienced by the carton under normal handling conditions.

Background of the invention

In packaging and handling eggs in dozen egg cartons for retail sale, cartons have been developed that define individual pockets or areas of separation for each egg. Recently, cartons of this type have been fabricated of molded pulp, paper, polystyrene or other moldable material that can easily be fabricated to form the egg pockets. Obviously, it is desirable to use a minimum of material in each carton to reduce the expense of manufacturing the cartons while retaining the structural strength characteristics necessary for the carton. In molding an egg carton to have the interior egg pockets, it is usually necessary to form the exterior surface of the carton with a plurality of indentations or grooves, etc., which, depending upon the shape of the carton, may tend to weaken or strengthen the structural rigidity of the overall carton. For instance, to create an internal protrusion to separate two rows of eggs from each other in a dozen egg carton, it might be desirable to mold the cover portion of the carton with a groove extending from the exterior portion of the carton to the interior portion thereof, to an area between the rows of eggs. While this feature is desirable if it functions to maintain the eggs apart from one another, the presence of the groove of the cover portion, depending upon its configuration, may weaken or strengthen the bending and torsional strength characteristics of the cover portion of the carton. In either case, the thickness of the wall portions of the carton must be adjusted so as to provide a low cost carton with the necessary strength characteristics. Furthermore, the external configuration of the carton may be such that it is not eye appealing or does not present a surface which is practical for the application of printed matter.

Summary of the invention

This invention comprises the combination of an egg carton and a label applied thereto which functions to strengthen the carton. In some applications, the cover portion of the carton defines an inwardly extending, external groove which is covered by the label. The label is fabricated of a thermoplastic material, such as polypropylene or polyethylene, and applied to the exterior surface of the cover portion of the carton with heat so that, as the label has been applied to the carton and shortly thereafter the label tends to shrink. The label is

coated with a thin layer of heat reactive adhesive that reacts to bond the label to the carton in the same temperature range which also causes the label to shrink. The shrinking of the label causes it to stretch over the surface of the carton and impart strength characteristics to the cover portion of the carton.

Accordingly, it is an object of this invention to provide the combination of an egg carton and a thermoplastic label applied thereto wherein the label strengthens the structural stability of the carton.

Another object of this invention is to provide a thermoplastic label for an egg carton wherein the label is applied to the carton in such a manner as to cover indentations and recesses in the carton and provide a flat surface.

Another object of this invention is to provide a label for an egg carton that shrinks after being applied to the egg carton.

Another object of this invention is to provide a method of imparting additional strength characteristics to an egg carton.

Another object of this invention is to provide an inexpensive label for an egg carton that is easily applied to the egg carton, shrinks after being applied to the egg carton and presents a flat surface which is convenient in handling and stacking the cartons upon one another immediately following the labeling of the carton.

Other objects, features and advantages of the present invention will become apparent upon reading the following specification when taken in conjunction with the accompanying drawing.

Brief description of the drawings

FIG. 1 is a perspective view of an egg carton with the label applied thereto, the label being partly broken away to show the indentation of the cover portion of the carton.

FIG. 2 is an end elevational view, in cross section, of an egg carton having a label applied to the cover portion thereof.

FIG. 3 is a schematic diagram showing an example of how the labels can be applied to the egg cartons.

Description of the preferred embodiment

Referring now more particularly to the drawing, in which like numerals indicate like parts throughout the several views, FIG. 1 shows an egg carton 10 having a base portion 11 and a cover portion 12. The carton 10 is preferably molded from polystyrene, but can be molded from other plastic materials or pulp or similar moldable materials. Base portion 11 is formed so as to have a plurality of egg receiving chambers 14 disposed in two rows. Egg receiving chambers 14 are generally shaped so as to receive and support eggs 15 (FIG. 2) in an upright, separated position.

Cover portion 12 is integrally connected to base portion 11 by means of hinge 16, and is pivotal to a closed position, as shown in the drawing. Cover portion 12 defines a groove 18 extending inwardly of its exterior surface, and over a major portion of its length. Groove 18 is formed so as to aid in maintaining the eggs separated from one another within the carton when the cover portion 12 is in its closed position.

It is desirable to fabricate the wall structure of the carton as thin as possible so as to reduce the amount of material necessary, and the expense in fabricating each carton. The curved portions of the carton impart structural characteristics to the carton so that the wall thickness can be adjusted to a greater or lesser thickness than if the surfaces of the carton were substantially flat in configuration. As is shown in FIG. 1, the application of a label 20 to the exterior surface of the cover portion 12

covers groove 18. The label 20 and groove 18 tend to form a triangular cavity between the label and the cover portion. As is shown in FIG. 2, label 20 forms with the remaining area of cover portion 12 a generally flat upper surface on the carton which hides groove 18. Label 20 is bonded to the upper surface of cover portion 12 so that a material of label 20 resists any bending of the cover portion 12 about its groove 18. Thus, label 20 imparts additional structural rigidity to the cover portion 12 of the carton 10.

In order that label 20 impart the greatest possible structural rigidity to the cover portion 12 of the carton 10, label 20 must be stretched over the upper surface of cover portion 12 and bonded securely to the cover portion. While the stretching and bonding of label 20 onto the upper surface of cover portion 12 can be carried out by hand, FIG. 3 illustrates a process in which a continuous strip of labeling material 21 is applied to the exterior surface of cover portions 12. The labeling material is coated with a thin layer of bonding material, such as a polyamide, that is heat reactive, so that pressing the labeling material onto a surface with an object heated to a predetermined temperature, usually above 230° Fahrenheit, causes the labeling material to stick to the surface. Cartons 10 are placed on a moving conveyor belt 22 so that they pass beneath a heated roller 24. The continuous strip of labeling material 21 is fed toward heated roller 24 by means of guide or feed rollers 25. A cutting mechanism 26 functions to cut the strip 21 of labeling material at predetermined intervals. A belt or a series of wires 28 are stretched over heated roller 24 and feed rollers 25 so that the flimsy plastic material from the continuous strip of labels is urged toward the cover portion 12 of the carton. As the labeling material passes between heated roller 24 and the upper surface of cover portion 12 of each carton, heated roller 24 heats and presses the labeling material onto the surface of the cover portion 12 and cutting mechanism 26 severs the strip of labeling material. When the thermoplastic material is heated and pressed onto the surface of carton 10, heat reactivated coating on the label is urged into the pores of the carton material, and when the label cools, it clings to the surface of the carton. Furthermore, heating of the label causes it to shrink so that it is stretched over the surface of the cover portion 12 of the carton 10.

While the apparatus of FIG. 3 has been utilized specifically in combination with a polystyrene egg carton and a polypropylene label, it should be understood that a label of any material properly stretched over the upper exterior surface of a cover of an egg carton would impart certain strength characteristics to the carton. With the additional strength added to the cover portion of the carton, the carton can be fabricated with even thinner wall construction to further reduce the volume of material of the carton and the cost of production of the carton.

When a label is stretched over indentations or recesses of the cover of a carton, the closing of the indentations or recesses tends to impart even more strength characteristics to that portion of the carton. Also, if the carton is constructed to open from its center, the label will function to hold the two halves of the lid in their closed position. The placement of the label 20 over the groove 18 of each carton also provides a substantially flat surface suitable for advertising and labeling information. The fact that the label shrinks after it is applied to the cover portion insures that any wrinkles or creases that might have been present in the label when applied to the carton are stretched out. When applying polyethylene or polypropylene labels to a polystyrene carton, the use of glue or other bonding material, and the equipment necessary to apply the glue to the carton or label or remoisten the glue at the point of the labeling operation is avoided.

The labels are coated with the bonding material and printed with conventional equipment before shipment to the egg room. Labels of various retail merchants can be stocked in the egg room and applied to the cartons, when appropriate, by merely changing the supply of labeling material 21 on the machine, thus avoiding the expense of changing the printing apparatus that would otherwise be necessary if the printing was to be applied directly to the carton, or stocking cartons manufactured with various different labels.

At this point, it should be obvious that the invention disclosed herein provides an inexpensive egg carton having superior strength characteristics and which is eye appealing, and the manner in which the labels are applied to the carton is such as to require a minimum of labor and equipment.

It will be obvious to those skilled in the art that many variations may be made in the embodiments chosen for the purpose of illustrating the present invention without departing from the scope thereof as defined by the appended claims.

What is claimed as invention is:

1. An egg carton fabricated of polystyrene and comprising a cover portion having a top surface defining an elongated recess, said cover portion being pivotally connected along one of its edges to a base portion, and a thermoplastic label stretched across only said top surface of the cover portion over the recess.

2. The invention of claim 1 wherein said label is characterized by having been shrunk after having been applied to the carton.

3. A carton for storing eggs or the like comprising a tray having two rows of a plurality of egg receiving cells, and a plurality of internally extending posts positioned between the rows of cells, cover means hingedly connected to the tray comprising internally extending support means pivotable with the cover means into engagement with the posts of the tray and forming an external continuous recess along a major portion of the length of the cover, and a label stretched across the external surface of the cover from one side to the other side of the external recess.

4. The invention of claim 3 wherein said carton is fabricated of polystyrene and said label is fabricated of a coated thermoplastic.

5. The invention of claim 3 wherein said label is characterized by having been shrunk after having been applied to the carton.

6. The invention of claim 3 wherein said label and the wall portions of said recess generally form a triangle in cross-section.

7. A polystyrene carton comprising a base portion defining a plurality of egg receiving cells arranged in two rows, a cover portion pivotally connected along one of its edges to said base portion, an indentation located in said cover portion and extending along a major portion of its length between the two rows of egg receiving cells, and a label fabricated of a coated thermoplastic stretched across said indentation.

8. The invention of claim 7 wherein said label is of a length and width to cover said indentation and has the characteristics of having been shrunk after having been applied to the carton.

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