July 15, 1969 E. D. GILLAM 3,455,497

CARTONS FOR INSPECTION

Filed April 15, 1966

FIG. 1

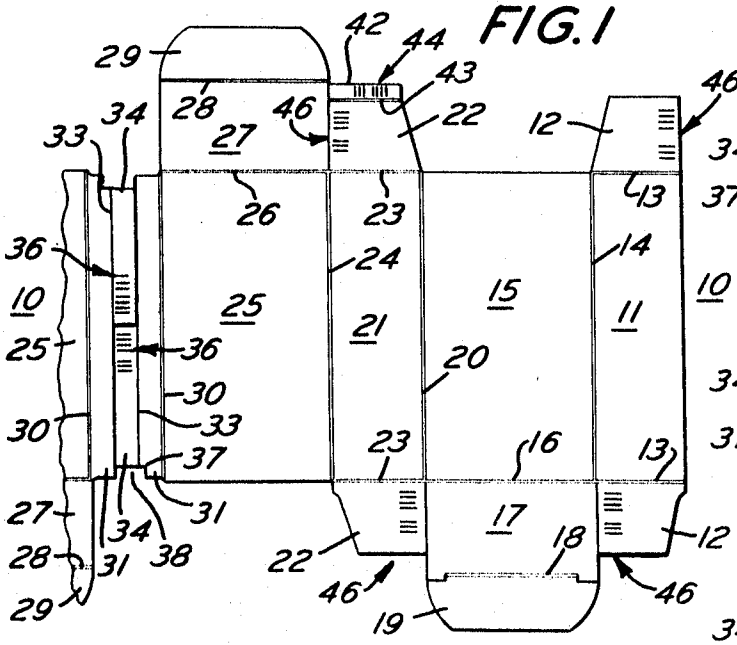


FIG. 4

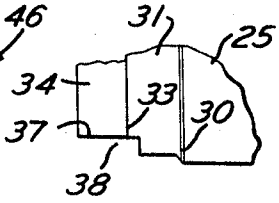


FIG. 5

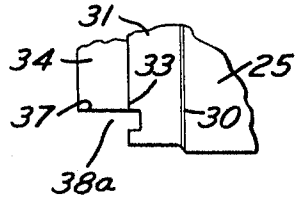


FIG. 6

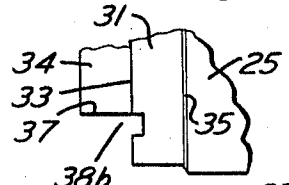


FIG. 2

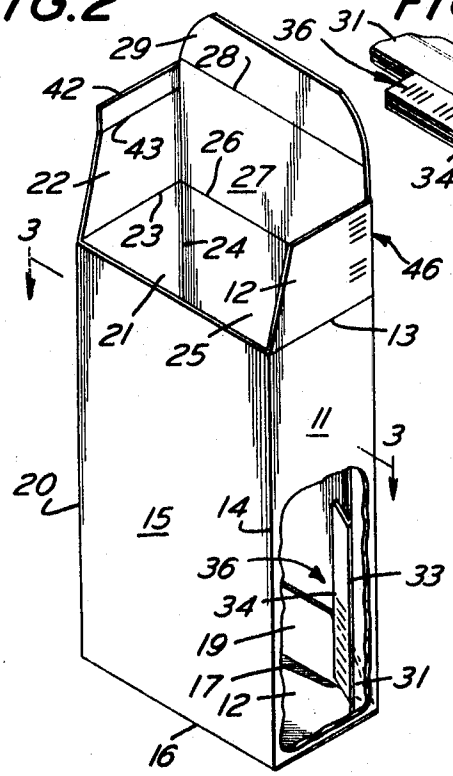


FIG. 7

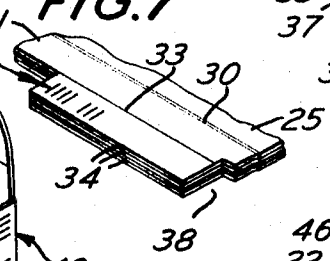


FIG. 8

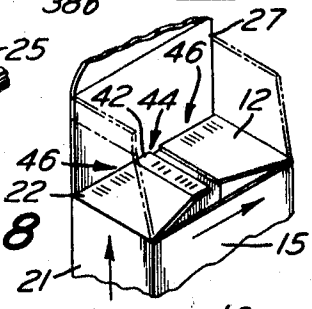
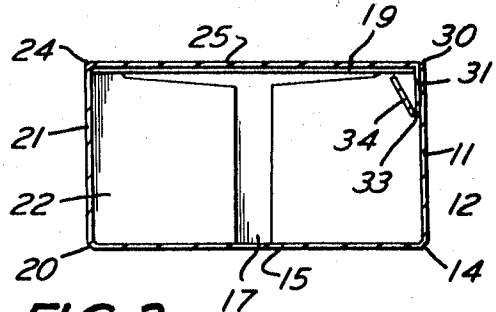


FIG. 3



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CARTONS FOR INSPECTION

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U.S. Cl. 229—38 3 Claims

ABSTRACT OF THE DISCLOSURE

A carton for inspection at a plurality of stages including initial assembly and subsequent filling in which after the initial assembly by gluing the first stage indicia is still accessible for checking, which preferably has an identifying edge configuration for simultaneous manual or visual identification and which has filling stage indicia for checking at the time of filling and closing, the second stage indicia being at a convenient location. Additional provisions are made for removable indicia portions for inventory control and other purposes.

This invention relates to cartons for inspection.

It has heretofore been proposed in the U.S. patent to Leavens, No. 3,035,380 to provide a carton with code indicia for actuating photo-electric inspection and electronic identification. For this purpose code indicia is provided at separated locations, one of which is on a glue lap or glue flap and the other of which is on an end flap or tuck.

This arrangement of indicia has serious shortcomings. In some folding and gluing machines difficulty is encountered in locating the scanning or detecting apparatus to conform to the limitation on locations imposed in the Leavens patent.

Another very serious objection to the approach of the Leavens patent is that after gluing the indicia on the glue lap or flap cannot be checked without defacing or destroying the carton that for some purposes additional indicia at another location is essential.

The carton of that patent, also had no provisions for simultaneous mechanical or visual checking of a plurality of cartons but was restricted to sequential inspection with special equipment which special equipment was highly susceptible to power failures.

It is the principal object of the present invention to provide an improved carton for inspection and which is capable of inspection after gluing without mutilation or destruction of the indicia carrying panel.

It is a further object of the present invention to provide an improved carton for inspection which has a wide adaptability for scanning or inspection apparatus so that such apparatus can be at convenient and effective locations in the machine.

It is a further object of the present invention to provide an improved carton for inspection and which, in one aspect of the invention, has an available and accessible panel with indicia for scanning and checking, which panel is concealed but not glued when the carton is closed.

It is a further object of the present invention to provide an improved carton for inspection and which in one aspect of the invention has an initial inspection panel which is capable of removal during gluing, or of retention for subsequent inspection to identify a batch or to check an individual package having multiple locations of indicia for inspection.

It is a further object of the present invention to provide an improved carton for inspection and which as another aspect of the invention has indicia for scanning located so as to serve a multiple function, i.e. for photoelectric or electronic inspection, initially at the folding and gluing

of the carton, and subsequently at the filling and closing of the carton and which additionally, if desired, may have one or more auxiliary removable portions for inventory control and other purposes.

It is a further object of the present invention to provide indicia for scanning which is disposed on the carton so as to be capable of utilization for checking at the time of gluing and for checking at the time of filling and closing.

It is a further object of the present invention to provide a carton having printed code indicia in one or more advantageous locations and which further embodies indicia for simultaneous manual or visual identification of a plurality of cartons by reason of the outline or shape of die cut edges of the carton.

It is a further object of the present invention to provide improved cartons for inspection for checking conformity thereof to prescribed requirements.

Other objects and advantageous features of the invention will be apparent from the description and claims.

The nature and characteristic features of the invention will be more readily understood from the following description taken in connection with the accompanying drawings forming part thereof, in which:

FIG. 1 is a plan view of a blank for a carton in accordance with the invention as seen from the printed side;

FIG. 2 is a view in perspective of the carton in vertical position, parts being broken away to show the details of construction;

FIG. 3 is a transverse sectional view, taken approximately on the line 3—3 of FIG. 2;

FIG. 4 is an enlarged view of a portion of a carton blank showing a gage location or shaped indicia;

FIG. 5 is a view similar to FIG. 4 showing another gage location or shaped indicia for a differently identified carton from that of FIG. 4;

FIG. 6 is a view similar to FIGS. 4 and 5 showing still another gage location or shaped indicia for a still differently identified carton;

FIG. 7 is a fragmentary perspective view showing a plurality of stacked blanks with their gage locations in alignment indicating like cartons; and

FIG. 8 is a fragmentary view in perspective showing the availability of the indicia for scanning.

It should, of course, be understood that the description and drawings herein are illustrative merely, and that various modifications and changes can be made in the structure disclosed without departing from the spirit of the invention.

Like numerals refer to like parts throughout the several views.

In accordance with the present invention, cartons for inspection are provided, with multiple safety measures to better control the inspection, and including inspection with mechanical, visual and electronic equipment that have been known to have failures when used alone. Multiple safety features are highly advisable because of the ever present possibility of mixups of printed boxes in relation to contents, such mixups, particularly if the contents are pharmaceutical preparations or drugs, having disastrous potentialities to the consumer.

Referring now more particularly to the drawings a carton blank **10** is shown merely by way of illustration.

The carton blank **10** can be of any desired material but is preferably cut and formed and of paperboard or the like with a finished face to receive the printing for identifying the contents and with cut lines and crease lines as desired. The blank includes a rectangular exterior side wall panel **11**, having opposite end dust flaps or tabs **12** joined thereto along transverse crease lines **13** and interiorly disposed in the set up and closed condition of the

blank **10**. The side wall panel **11** has joined thereto along a longitudinal crease line **14** a rectangular exterior front wall panel **15**.

The front wall panel **15** has joined thereto along a transverse crease line **16** an end exterior wall **17** which has, connected thereto along a transverse crease line **18**, a tuck flap **19**.

The front wall panel **15** has joined thereto along a longitudinal crease line **20**, an exterior side wall panel **21**, similar to the side wall panel **11** with opposite end dust flaps or tabs **22** joined to the panel **21** along longitudinal crease lines **23**. The side wall panel **21** has joined thereto along a longitudinal crease line **24** a rectangular exterior rear wall panel **25**.

The rear wall panel **25** has joined thereto along a transverse crease line **26** an exterior end wall **27** which has, connected thereto along a transverse crease line **28**, a tuck flap **29**.

The rear wall panel **25** has joined thereto along a longitudinal crease line **30**, a glue flap **31**. The glue flap **31** is adapted to have glue applied to its upper face and to be secured to the inner face of the side wall panel **11** as hereinafter pointed out. The glue flap **31** is preferably of lesser width than the side wall panel **11**.

The blank **10** as just described, and with its finish face printed is well known and is adapted to be glued by well known types of gluers, and shipped to a location for automatic setting up, insertion of the contents, and closing.

In accordance with the present invention the blank **10** at a convenient location is preferably provided with an inspection panel which can be utilized during gluing and subsequently for this purpose, it is preferred that the glue flap **31** have joined thereto along a weakened line **33**, either deeply scored or perforated, an inspection panel **34**. The inspection panel **34** can be of the same or substantially the same length as the glue flap **31** but is preferably shorter so that an adjoining blank **10** oppositely turned can be positioned with its inspection panel **34** aligned with the inspection panel **34** of an adjoining blank **10**. This permits saving board.

The inspection panel **34** is preferably provided with printed indicia **36** for sequential photoelectric and/or electronic scanning in a well known manner.

The inspection panel preferably at one marginal edge **37**, this being the leading edge, and extending into the panel **31**, is provided with a keying notch or cut out **38** of predetermined size and shape for a particular batch or type of cartons, to provide visible indicia and gaging locations. The cut out **38**, as shown in alternative forms at **38***a* and **38***b* in FIGS. 5 and 6, can be varied as desired to provide different gage locations.

The cut out serves for alignment in a stack with a particularly located keying gage bar (not shown) or for control of a detector finger (not shown) upon sequential movement, and the plurality of cut outs **38** in a vertical stack of blanks **10** (FIG. 7) by their uniformity will show visually compliance with a standard, or by their lack of uniformity, the presence of cartons not consistent with a standard. The extension of the keying notch **38** into the panel **31** provides certainty of response upon insertion of the keying gage bar or upon visual inspection.

The blank **10** can also be provided on one of the portions thereof which is not visible when the carton blank is set up with a second area of printed indicia **46** for photoelectric and/or electronic scanning.

The blank **10** may also alternatively or additionally to the indicia **46** have on one of the tabs or flaps **22** projecting from a wall panel **11** or **21** an auxiliary inspection panel, such as the panel **42** joined to one of the end tabs **22**. The panel **42** is preferably joined to this tab **22** by a weakened line **43**, which can be deeply scored or perforated to facilitate severing. The panel **42** is preferably also provided with printed indicia **44**, which is positioned on the panel **42** for use upon movement of the glued carton in flat condition in a direction at right angles to the initial direction of travel.

It is preferred however, to place printed indicia **46** which will activate the scanning mechanism on one or more of the tabs or panels **22**. The printed indicia **46** is positioned so that upon initial longitudinal movement for folding and gluing of the cartons the indicia **46** will activate first scanning mechanism above or below the blank **10** during its passage through the folding and gluing machine. Subsequently during filling, and with that tab **22** folded to a position at right angles to its position in the blank **10**, this same indicia **46** can be employed again for activating a second scanning mechanism.

The manner of use will now be pointed out.

After the sheets on which the blank **10** has been printed and provided with crease lines, cuts and perforations, the blank **10** is separated from that sheet. The blanks **10** can be initially assembled with an automatic folding and gluing machine of well known type and with the glue flap **31** secured to the under face of the side wall panel **11**, the blank **10** being folded along the crease lines **14** and **24** during its passage through the folding and gluing machine.

While the blanks **10** are in flat condition they are capable of visual inspection at the cut outs **38**, or stacking with respect to a keying gage bar (not shown) at the cut outs **38**, **38***a* and **38***b*. The blanks **10** are also subject to rapid successive scanning of the printed indicia **36**.

During the passage of the blanks **10** through the gluing machine the inspection panels **34** can be severed and collected for control purposes although it is preferred that they remain in place and interiorly disposed along the inner face of the side wall panel **11** to which they are brought by the glue flaps **31**.

By the use of the gage indicia **38** and the printed indicia **36** compliance with a standard can be effected up to and during the gluing so that the presence of undesired blanks can be ascertained and these rejected or removed.

If the cartons in glued and flat condition are shipped to another location for filling the indicia **36** and/or the indicia **44** can be utilized by scanning to further insure that the cartons when set up are filled with the proper contents.

During setting up, if desired, the auxiliary inspection panel **42** can be severed and collected for purposes of checking, although if desired for later inventory control this panel **42** can be left in position.

The retention of the inspection panel **34** permits of checking after gluing whether or not the indicia **36** and/or **44** are employed, without defacing or destroying the carton, the panel **34** being capable of being swung about the crease line **33** to the extent desired for inspection, without removing the contents or upon removal of the contents.

In other instances, and dependent upon the available locations for mounting the scanning equipment the tab or panel **42** can be omitted and the indicia **46** can be employed in conjunction with the indicia **36** for actuating the scanning mechanism. As illustrative, for initial scanning the indicia **36** can be utilized while for the second scanning in conjunction with the filling and closing of the carton the indicia **46** may be employed.

It is also feasible with another set up of scanning mechanism to rely wholly on the indicia **46** on only one of the tabs **12** or **22**. During the first scanning operation, the tabs **12** and **22** will be in flat condition and its indicia is advanced sequentially past the first scanning mechanism. Then during the filling operation and before the panels **17** and **27**, and the tuck flaps **19** and **29** are moved to the closing locations, the tab **12** or **22** is bent at right angles to its original position in the blank and as

the carton is advanced the indicia **46** is sequentially advanced past the second scanning mechanism.

It will thus be seen that a wide range of control is available to accommodate the carton to a variety of arrangements of photoelectric or electronic scanning mechanism as well as visual and keying gage bar alignment.

I claim:

1. A carton formed from a blank having exterior side and top and bottom wall panels and other panels interiorly disposed in the set up and closed condition of the carton, said interiorly disposed panels including a glue flap hinged to one of said side panels along a longitudinal hinge line and with its face secured to the interior of another of the side panels, and

a code indicia carrying panel in hinged relation to said glue flap for movement of its face to expose the indicia thereon,

the combined width of said glue flap and indicia carrying panel being less than the width of said other of said side panels to which said glue flap is attached.

2. A carton as defined in claim **1** in which an additional code indicia carrying panel is hingedly connected to one of the side panels along a transverse crease line and is movable from a flat position to a bent position with its indicia disposed for reading in the bent position.

3. A carton formed from a blank having exterior side and top and bottom walls and other panels including

hingedly mounted dust flaps interiorly disposed in the set up and closed condition of the carton, said interiorly disposed panels including a glue flap hinged to one of said side panels, one of said dust flaps having code indicia and being movable from a flat position with its code indicia disposed for reading to a bent position with its code indicia disposed for reading in the bent position.

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DAVIS T. MOORHEAD, Primary Examiner.

U.S. Cl. X.R.

40—312; 53—47; 235—91