July 23, 1963 E. C. SHERMAN ETAL 3,098,583

CARTON LOCK

Filed Aug. 28, 1961 2 Sheets-Sheet 1

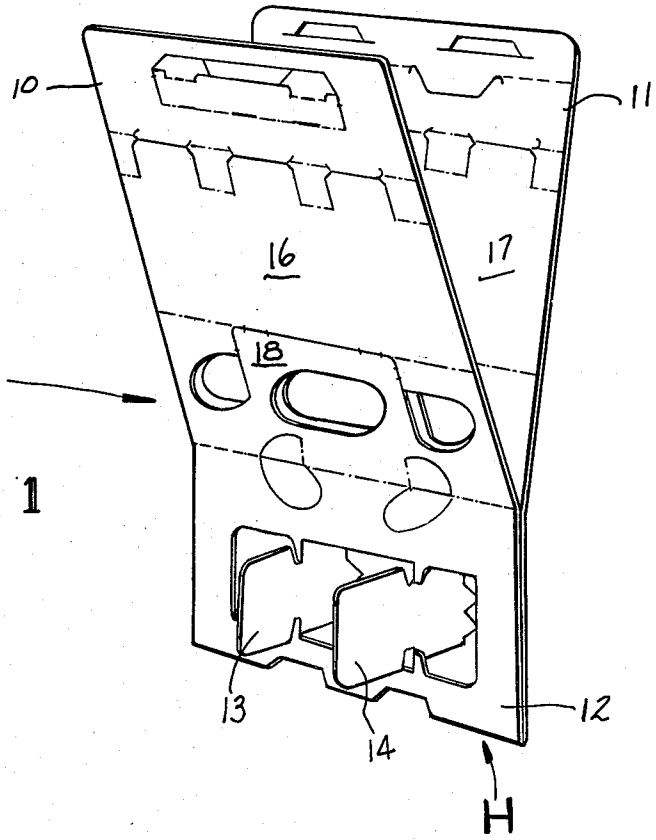

FIG - 1

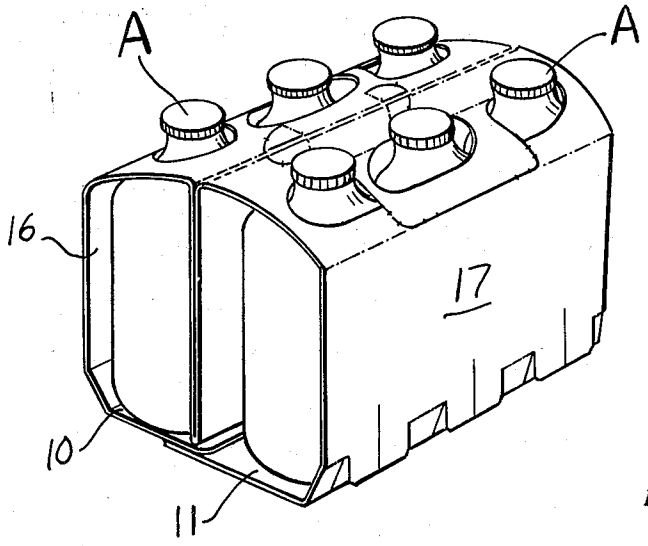

FIG - 2

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Filed Aug. 28, 1961 2 Sheets-Sheet 2

FIG-3

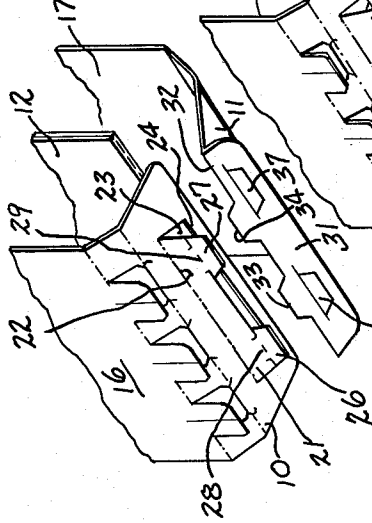


FIG-4

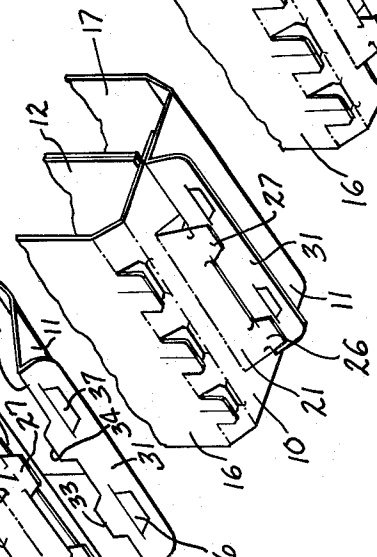


FIG-5

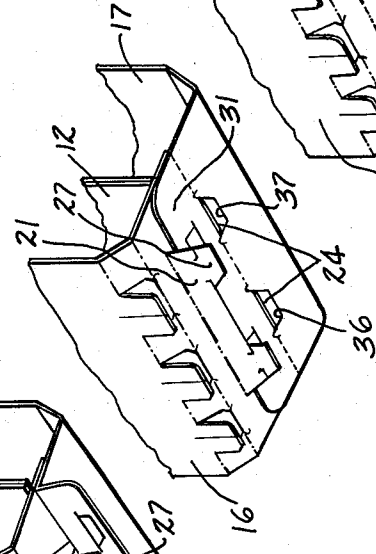
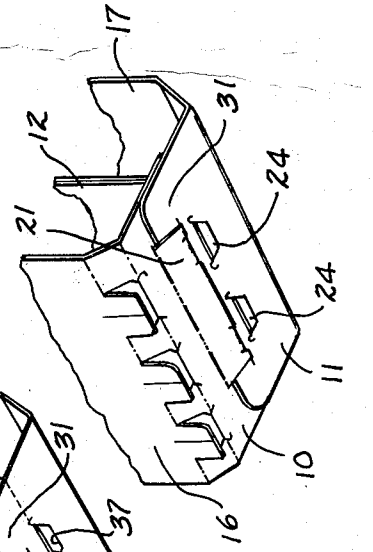


FIG-6



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CARTON LOCK

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3 Claims. (Cl. 220—113)

The present invention relates to packages and relates in particular to a mechanical lock for so-called "wrap around" packages.

In recent years it has become customary to package small, uniform articles such as cans, bottles and similar items in groups by arranging the articles in single or plural rows and encircling a definite number of articles with a wrapper characterized by a sheet of packaging material such as paper, plastic or a composite of paper and plastic board.

Group packaging in this fashion requires that the wrapper be drawn tightly about the articles because frequently retention of the articles within the package is a function of how tautly they are wrapped.

Tight wrapping requires strong wrapper material and a strong bond or lock between overlapped ends or margins of the wrapper encircling the articles. In addition, high speed machinery requires that the lock be effected expeditiously preferably without a gluing operation.

Accordingly, it is a feature of the present invention to provide a novel mechanical lock for the wrapper of a wrap around carton.

It is a further feature of the invention to provide a lock device for a wrap around carton wherein overlapping margins of the wrapper are mechanically locked together in at least two distinct places.

A carton wrapper for packaging a plurality of articles employing the locking features of the present invention may comprise a blank of board material having cooperating marginal portions defining a first or inner margin and an overlapping second or outer margin, said first margin being hinged to the wrapper and being formed with at least one opening and at least one hinged tuck flap, said second margin being hinged to the wrapper and having at least one cut-out and at least one tongue, said tongue of said second margin being operative to engage and lock to the opening of the first margin while the tuck flap of the first margin is operative to engage and lock with the cut-out of the second margin whereby the blank is secured tautly about the articles.

Other features and advantages of the present invention will become more apparent from an examination of the succeeding specification when read in conjunction with the appended drawings wherein:

FIG. 1 is a perspective view of a carton blank or a wrapper fabricated of paper board and employing the principles of the lock device of the present invention;

FIG. 2 is a perspective view of the blank of FIG. 1 fully locked and assembled into a package including six bottles;

FIGS. 3, 4, 5 and 6 show portions of the bottom of the carton of FIG. 2 in perspective, as viewed from the opposite end, and illustrating the details of the wrapper lock including the steps in locking the overlapping margins together.

Referring now to FIGS. 1 and 2, note that a blank or wrapper of paper board material B hinged at H terminates in margins **10** and **11**, respectively. The margins are formed with cuts and scores to define structure operative to interlock in a manner to be described in detail hereinafter.

For convenience in claiming the invention, margin **10** will be referred to as the inner or first margin while

margin **11** will be referred to as the second or outer margin.

The wrapper includes integral longitudinal partition **12**, transverse partitions **13** and **14**, side walls **16** and **17**, and access flaps **18** and **19**.

Referring to FIGS. 3, 4, 5 and 6, inner margin **10** is formed with a hinged flap **21** rotatable about score line **22** to reveal an opening **23** bounded on one side by locking bar **24**.

The flap **21** is formed with tuck flaps **26** and **27** hinged thereto and rotatable about score lines **28** and **29**, respectively.

Outer margin **11** carries a hinged flap **31** rotatable about score line **32**. The flap **31** is formed with locking tongues **33** and **34** and cut-outs **36** and **37**.

Locking of the blank or wrapper B is effected in the following fashion:

Side walls **16** and **17** are hauled downwardly about the articles A being packaged (see FIG. 2) so that the wrapper is drawn tautly about the heads or necks of the articles.

Next the margins **10** and **11** are drawn inwardly to a position generally normal to side walls **16** and **17**, respectively, as shown in FIG. 3.

Flaps **21** and **31** have been rotated downwardly to a position generally parallel to one another and generally normal to the plane of margins **10** and **11**.

The flaps **21** and **31** are grasped by suitable mechanical means and are moved toward one another drawing side walls **16** and **17** inwardly against the articles A until tongues **33** and **34** overtake and override locking bar **24**.

Tongues **33** and **34** are inserted into the opening **23** bounded by locking bar **24** with the result that margin **11** overlays margin **10** with tongues **33** and **34** projecting inwardly and with flap **31** generally normal to margins **10** and **11** as shown in FIG. 4.

With flap **21** remaining in a generally normal position relative to overlapped margins **10** and **11**, flap **31** is rotated toward the package so that the flap is disposed generally coplanar with margins **10** and **11** as viewed in FIG. 5.

The foregoing description defines the structure and steps for accomplishing a first lock between margins **10** and **11**.

Next, flap **21** is rotated toward flap **31**. Simultaneously tuck flaps **26** and **27** are rotated relative to flap **21** and the leading edges of the tuck flaps are started into mating cut-outs **36** and **37** formed in flap **31**.

Next the flap **21** is rotated to a coplanar position relative to margins **10** and **11** while tuck flaps **26** and **27** are driven home to the position shown in FIG. 6.

If desired, the tuck flaps may be formed with a spear or barb-like configuration to block withdrawal of the tuck flaps in a well known fashion.

Thus, the second lock is established with the margins **10** and **11** and the carton lock of the present invention is completed.

It is to be particularly noted that in addition to providing a dual locking means between overlapping margins of the wrap around carton, the present invention also provides by means of flaps **21** and **31** convenient appendages which may be grasped mechanically for hauling the carton inwardly about the articles being packaged to achieve maximum tautness.

Although only two pairs of dual locks are disposed in the present embodiment of the invention, it is anticipated that certain package structures will be adequately secure with one pair of locks, while others may require three or more.

What is claimed is:

1. A wrap around carrier for containers including a pair of vertical side walls joined to a top wall, an inner

margin joined to one of said side walls and extending generally normal thereto, an outer margin secured to the other side wall and extending generally normal thereto in overlapping relation with said inner margin, a first hinge flap cutout of said inner margin and folded normal thereto along a transverse hinge line to define an opening bounded along one edge by a locking bar, said first hinge flap being provided with a tuck flap along a free edge thereof, said outer margin including a second hinge flap rotatably secured thereto along a transverse score line, said second hinge flap including locking tongue means integral therewith, said locking tongue means projecting toward said other side wall and engageable with said locking bar when said second hinge flap is rotated into a position generally normal to said outer margin, and cutouts in said second hinge flap adapted to accommodate said tuck flap.

2. A double lock device for a carton having a pair of vertical side walls comprising, a first inner margin depending from one of said side walls and joined thereto along a transverse score line, said inner margin including a first hinge flap rotatable about a transverse score line to define an opening bounded on one side by a locking bar, said first hinge flap being rotatable into a position generally normal to said inner margin and being provided along its free edge with at least a single tuck flap, an outer margin adapted to overlap said inner margin and joined to the other vertical side wall along a transverse score line, said outer margin including a second hinge flap rotatably joined thereto along a transverse score line, said second hinge flap including at least a single locking

tongue rotatable therewith into a position normal to said outer margin and adapted to engage with said locking bar, said second hinge flap being further provided with a cutout to accommodate said tuck flap when said first hinge flap is folded into overlapping relation with said second hinge flap.

3. A lock device for a carton having a pair of vertical side walls comprising, a first inner margin depending from one of said side walls and joined thereto along a transverse score line, said inner margin having a first hinged flap rotatable along a transverse score line toward a position normal to said inner margin to define an opening bounded on one side by a locking bar, said first hinged flap being provided along its free edge with a plurality of tuck flaps joined thereto along transverse score lines, an outer margin secured to said other vertical side wall and joined thereto along a transverse score line, said outer margin including a second hinge flap provided with locking tongues, said second hinge flap and locking tongues being rotatable about a transverse score line toward a position generally normal to said second hinge flap and into interlocking relation with said locking bar, said second hinge flap being further provided with a plurality of cutouts to accommodate said tuck flaps.

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