Dec. 12, 1967 A. J. WEISS 3,357,552

CHIME LOCK FOR CANS

Filed Feb. 9, 1965

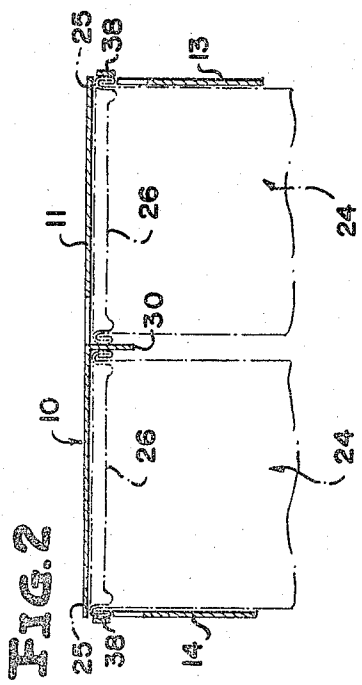


FIG. 2

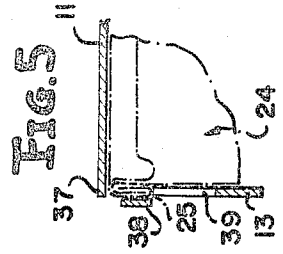


FIG. 5

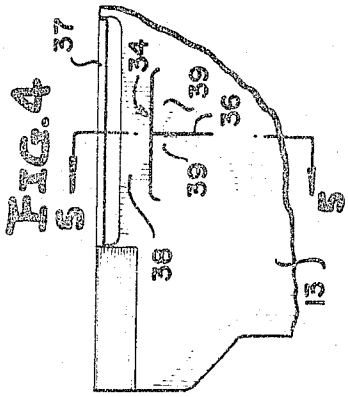


FIG. 4

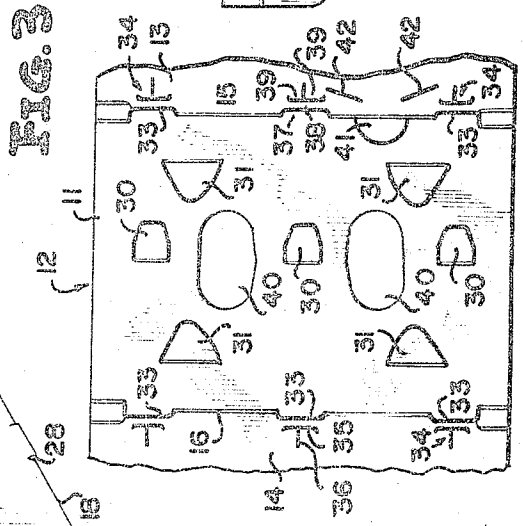


FIG. 3

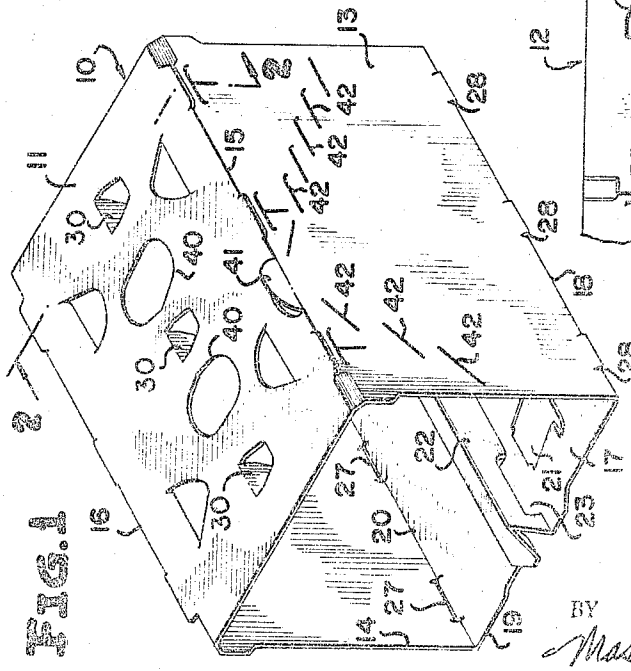


FIG. 1

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United States Patent Office 3,357,552 Patented Dec. 12, 1967

3,357,552

CHIME LOCK FOR CANS

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Filed Feb. 9, 1965, Ser. No. 431,305
4 Claims. (Cl. 206—65)

This invention relates in general to new and useful improvements in cartons for containers, such as cans, and more particularly to a carton having novel means for interlocking engagement with containers disposed therein.

This invention particularly relates to cartons for containers of the type having lateral peripheral projections at the ends thereof and cartons formed in accordance with this invention are particularly adapted for interlocking engagement with the peripheral projections.

In the past, interlocks between projections on containers nd cartons wrapped therearound have been effected by notching the side walls of the cartons to provide openings for receiving the container projections. It has been found that the notching of the cartons in this manner unduly weakens the cartons and does not provide for the desired interlock between the containers and the cartons. Accordingly, in accordance with this invention, it is proposed to so form cartons of the wrap-around type wherein a strap is formed on each carton for each of the containers disposed therein, the strap being so positioned whereby it is aligned with the projecting part of an associated container and serves to tightly grip the projection on the container in a manner so as to secure the container in a fixed position within the carton.

Another object of this invention is to provide a novel carton of the wrap-around type which is particularly adapted for receiving containers of the type having lateral peripheral projections at the ends thereof, such as the chimes or seams of cans, the carton formed in accordance with this invention having a narrow notch formed in the side panel thereof immediately adjacent the connection of the side panel with a carton panel which opposes the ends of containers, and a cut line generally opposing the notch whereby there is simultaneously formed in the carton a strap in the side panel and a projecting flap in the carton panel which opposes the ends of the containers, the strap being of the expansion type and being engageable with the projection of an associated container so as to firmly lock the container in place within the carton.

A further object of this invention is to provide a novel carton of the type set forth above wherein the cut line in the side panel adjacent the notch is of a generally T-shaped configuration so as to additionally provide a pair of locking flaps immediately adjacent the strap, the locking flaps being engageable with the body of the container on the longitudinal center side of the projection thereof so that the locking flaps may lock behind a container projection which is tightly engaged with the strap of the carton.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawings.

In the drawing:

FIGURE 1 is a top perspective view of a carton formed in accordance with this invention and shows the general details thereof.

FIGURE 2 is an enlarged fragmentary transverse vertical sectional view taken along the line 2—2 of FIGURE 1 and shows further the details of the carton and the relationship thereof with respect to containers, the containers being shown in phantom lines.

FIGURE 3 is a fragmentary plan view of a blank from which the carton of FIGURE 1 is formed.

FIGURE 4 is an enlarged fragmentary side elevational view of the carton and shows the details of the lock formed therein.

FIGURE 5 is an enlarged fragmentary transverse vertical sectional view taken along the line 5—5 of FIGURE 4 and shows the specific details of an interlock between the carton and a container disposed therein, the container being shown in phantom lines.

Referring now to the drawings in detail, it will be seen that there is illustrated in FIGURE 1 a carton which is formed in accordance with this invention, the carton being generally referred to by the numeral **10**. The carton **10** is formed from an elongated generally rectangular blank and includes a top panel **11** which is disposed centrally of the blank from which the carton **10** is formed, the blank being generally referred to by the numeral **12**, as is shown in FIGURE 3. The carton **10** includes a pair of side panels **13** and **14** which are connected to the top panel **11** along interrupted fold lines **15** and **16**, respectively. The carton **10** also includes a bottom panel **17**, which is connected to the side panel **13** along an interrupted fold line **18**, and a bottom panel **19** which is connected to the side panel **14** along an interrupted fold line **20**. The bottom panels **17** and **19** are disposed in partially overlapping relation and are tightly secured together by a conventional type of interlock which is generally referred to by the numeral **21**. In addition, the bottom panel **17** is also provided with an upstanding rib or keel **22** having notches **23** therein for the reception of projections on containers.

Referring now to FIGURE 2 in particular, it will be seen that in a completed package, the carton **10** has received therein a plurality of containers arranged in two rows. The containers are generally identified by the numeral **24** and normally are in the form of conventional cans, although the invention is not so limited. The cans or containers **24** are provided at their opposite ends with lateral peripheral projections **25** which, in the case of cans, are considered to be the seams or chimes of the cans. It is also to be noted that the projections **25** extend longitudinally of the containers **24** beyond the adjacent end panels **26** thereof. It is these projections of the containers **24** which are relied upon for the principal interlocking of the carton **10** therewith.

In the illustrated carton, the carton is provided with a series of H-shaped cuts **27** along the fold lines **18** and **20** to define openings **28** for the reception of the projections **25** of the containers **24**. It is also to be understood that the projections **25** are receivable in the notches in the rib **22**. In this manner, the lower ends of the containers are firmly interlocked with the carton **10**.

The top panel **11** is provided with a plurality of flaps **30** which are particularly adapted to be positioned between the projections of a pair of adjacent containers to both form a partial interlock with the containers and to prevent the riding of the projection of one container over the other. The relationship of the containers with respect to one of the flaps **30** is clearly shown in FIGURE 2.

The panel **11** is also provided with a plurality of folded locking tabs **31** for reception within the recessed ends of the container **24**. The locking tabs **31** are so positioned and configurated for reception in the endmost ones of the containers of each row of containers so as to prevent movement of the endmost containers towards the adjacent open ends of the carton **10**.

In order to facilitate the interlocking of the container **24** with the upper portion of the carton **10**, in the carton blank **12**, along the fold lines **15** and **16** there are formed a plurality of C-shaped cuts **33**. Each of the C-shaped cuts **33** is primarily formed in the associated one of the

side panels **13** and **14** and opens towards the panel **11**. Furthermore, it is to be noted that each of the cuts **33** is disposed in alignment with the midpoint of the intended position of an adjacent container. Each of the side panels **13** and **14** is also provided with a generally T-shaped cut, which is referred to by the numeral **34**, in alignment with each of the C-shaped cuts **33**. Each T-shaped cut **34** is formed of a generally C-shaped cut **35**, which is in back-to-back relation with respect to the associated cut **33**, and a straight line cut **36** which is disposed normal to the adjacent fold line and which intersects the center of the associated C-shaped cut **35**.

Referring now to FIGURES 1 and 4 in particular, it will be seen that when the carton blank **12** is folded to form the carton, inasmuch as the C-shaped cuts **33** are formed primarily in the side panels **13** and **14**, there results in the formation of flaps **37** which are integral with the top panel **11** and which project outwardly of the side panels **13** and **14**. Also, it will be readily apparent that the relationship of each C-shaped cut **33** and its associated T-shaped cut **34** is such so as to define a longitudinally extending strap **38** in the associated side panel in alignment with each of the flaps **37**. Furthermore, the specific configuration of the T-shaped cut **34** results in the formation of a pair of locking flaps **39** immediately adjacent the locking strap **38**. The flaps **39** are disposed on opposite sides of the straight line cut **36** and are individually outwardly expansible to conform to the shape of the container which is to be locked within the carton **10**.

It will be readily apparent that when the carton **10** is tightly wrapped about six of the containers **24**, the upper portion of each of the containers will be firmly interlocked with the upper portions of a respective one of the side panels **13** and **14**. As is clearly apparent in FIGURE 5, although the side panels **13** and **14** are brought into tight engagement with the containers **24**, the projections **25** of the containers **24** will result in the outward deflection of the straps **38** with the straps **38** tightly engaging and conforming to the contour of the associated portion of the container projection **25** to form a firm interlock between the strap **38** and the container projection **25**. At the same time, it will be seen that the associated flap **37** will overlie the projection **25** and provide adequate axial support therefor. Furthermore, it will be readily apparent that the locking flaps **39** will closely follow the contour of each container **24** immediately below the projection **25** and be interlocked beneath the projection **25**. In this manner, as is clearly shown in FIGURE 5, each container **24** is firmly interlocked with the carton **10** at the upper end of the container **24**.

It is also pointed out at this time that the specific arrangement of the cuts in the carton which result in he forming of the straps **38** and the locking flaps **39** is of a nature wherein not only is an added interlock provided between the carton and the containers, but also the carton has a minimum amount of material removed therefrom so as to not unduly weaken the same. In addition, it will be readily apparent that each of the straps **38**, since it is longitudinally co-extensive with the remainder of the carton, prevents any transverse weakening of the carton.

At this time it is pointed out that the carton **10** is also provided with a pair of finger receiving openings **40** in the top panel **11** to facilitate the gripping of the carton for the purpose of carrying the package of which the carton **10** forms a part. In addition, in order that the package may be readily opened, the top panel **11** is provided with a cut out **41** which is generally aligned with a series of diverging slits **42** to facilitate the tearing away

of the side panel **13**. Thus, the carton **10** provides for the firm anchorage of containers therein, and at the same time, facilitates the removal of the containers when it is so desired.

Although only a preferred embodiment of the invention has been specifically illustrated and described herein, it is to be understood that minor variations may be made therein without departing from the spirit and scope of the invention, as defined by the appended claims.

I claim:

1. In a carton of the wrap-around type particularly adapted for holding a plurality of containers of the type having a lateral peripheral projection at at least one end thereof, a panel adapted to engage container ends, a side panel connected to the first mentioned panel along a fold line, a first cut line generally along said fold line in alignment with the intended position of a container and a second cut line in said side panel in spaced adjacent relation to said first cut line to define a strap in said side panel extending generally parallel to said fold line for engagement with a container projection, said first cut line being primarily formed in said side panel and defining a projecting flap on said first mentioned panel for overlying a container projection in spaced relation to said strap.

2. The carton of claim **1** wherein said cut lines are generally C-shaped and in back-to-back relation.

3. In a carton blank for a carton of the wrap-around type particularly adapted for holding a plurality of containers of the type having a lateral peripheral projection at at least one end thereof, first and second adjacent panels connected together by a fold line, a generally C-shaped first cut line formed in said first panel along said fold line and opening towards said second panel to form a projecting flap on said second panel swingable away from said first panel when said first and second panels are swung relative to one another, and a generally C-shaped second cut line in said first panel in back-to-back relation to said first cut line and together with said first cut line defining a strap in said first panel aligned with and immediately adjacent to said flap.

4. In a package comprising a plurality of containers and a wrap-around carton, an interlocking connection between said carton and one of said containers comprising a carton side panel, an adjacent carton panel connected to said carton side panel and a lateral projection on one container at one end thereof; said side panel having a longitudinally extending strap aligned with said container projection and said strap being connected to the remainder of said side panel only at the ends of said strap with said strap being outwardly bowed by said projection; and a projecting flap on said adjacent carton panel longitudinally aligned with and transversely spaced from said strap, said flap projecting outwardly of said carton side wall and overlapping said container projection.

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