July 9, 1957 H. GRINSPOON 2,798,603

CARTON FOR CANS AND SIMILAR OBJECTS

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Fig. 1.

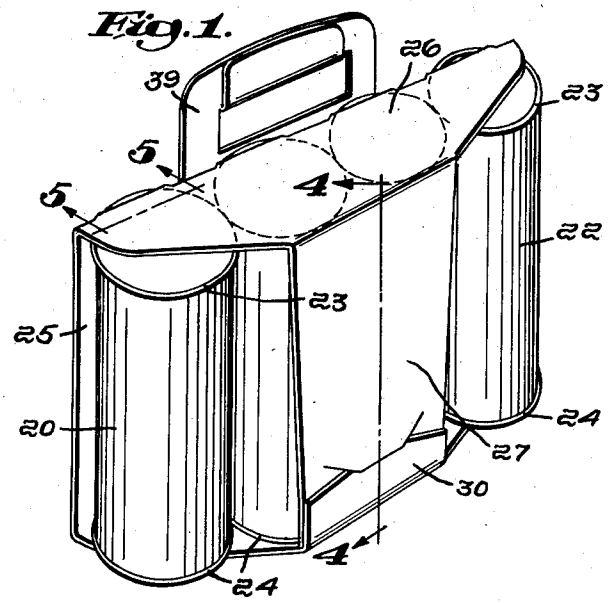
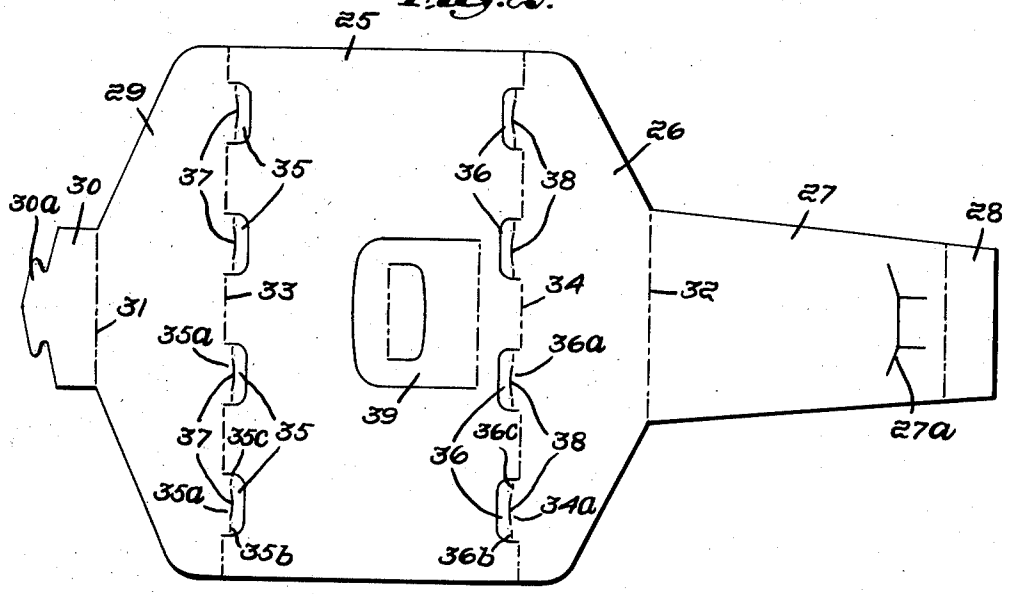


Fig. 2.



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Fig. 3.

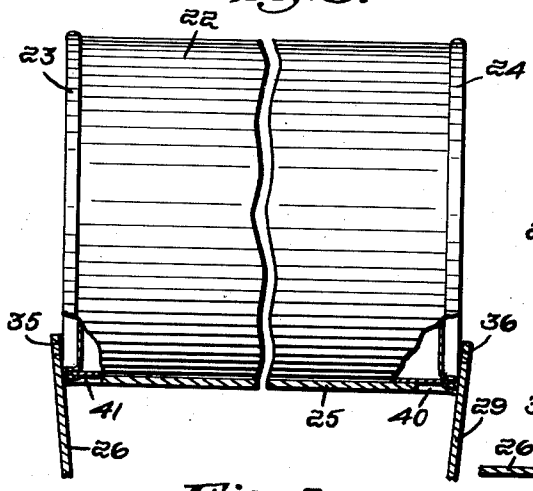


Fig. 3a.

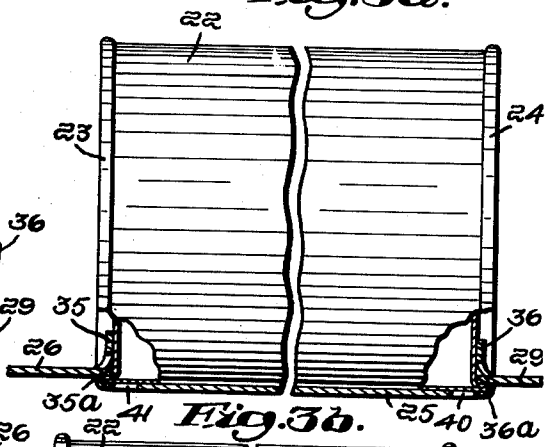


Fig. 5.

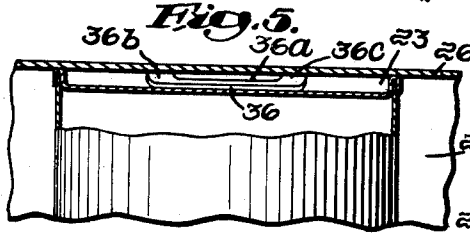


Fig. 3b.

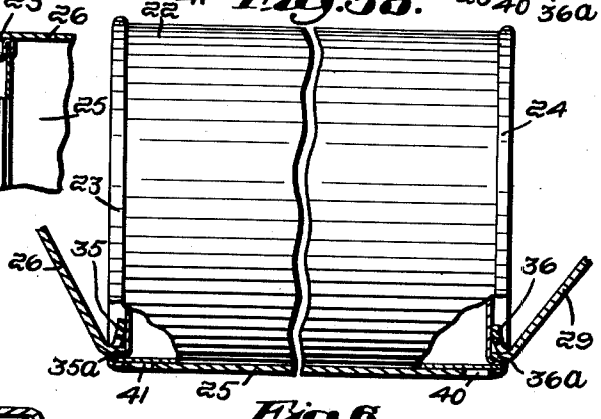


Fig. 4.

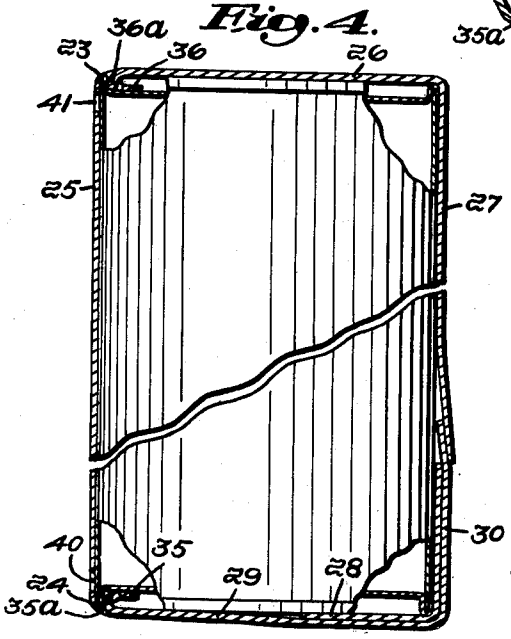
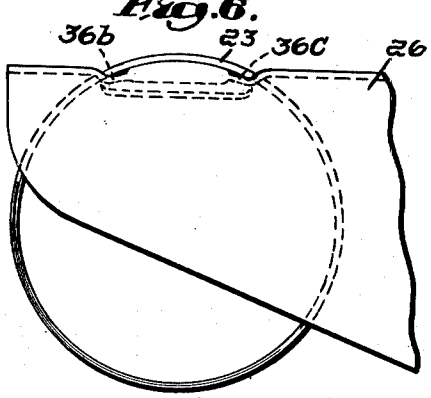


Fig. 6.



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CARTON FOR CANS AND SIMILAR OBJECTS

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Fig. 7.

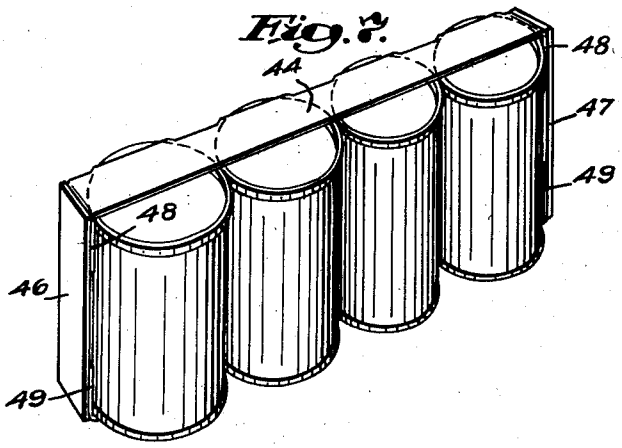


Fig. 8.

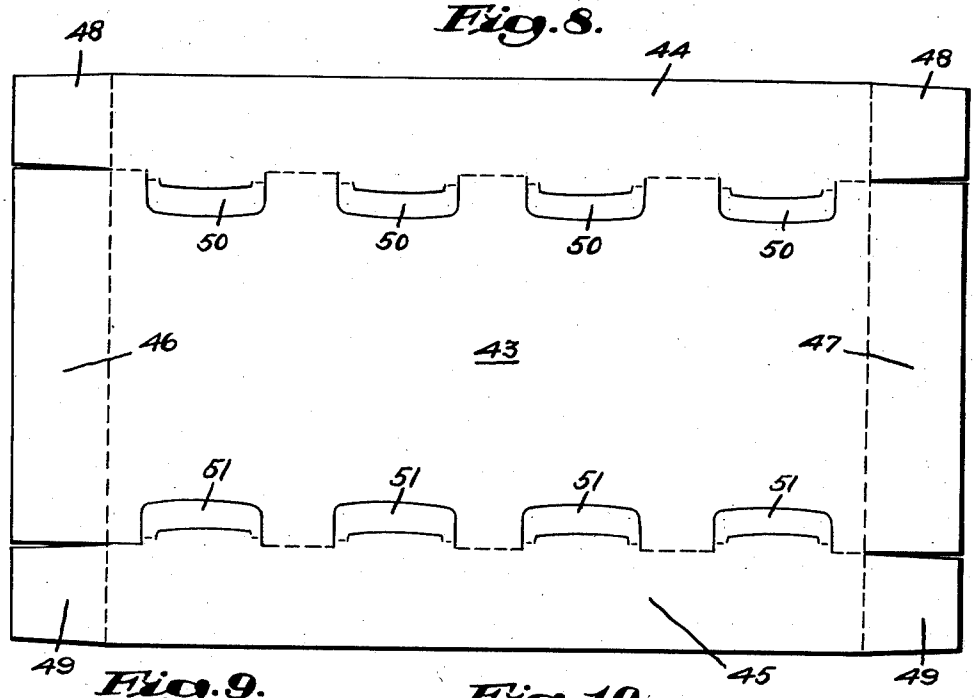


Fig. 9.

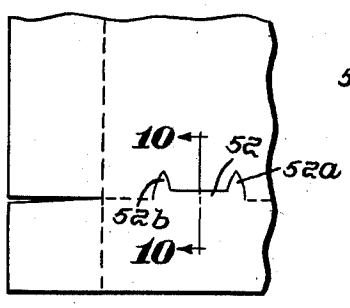
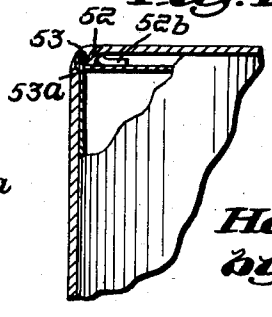


Fig. 10



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CARTON FOR CANS AND SIMILAR OBJECTS

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Fig. 11.

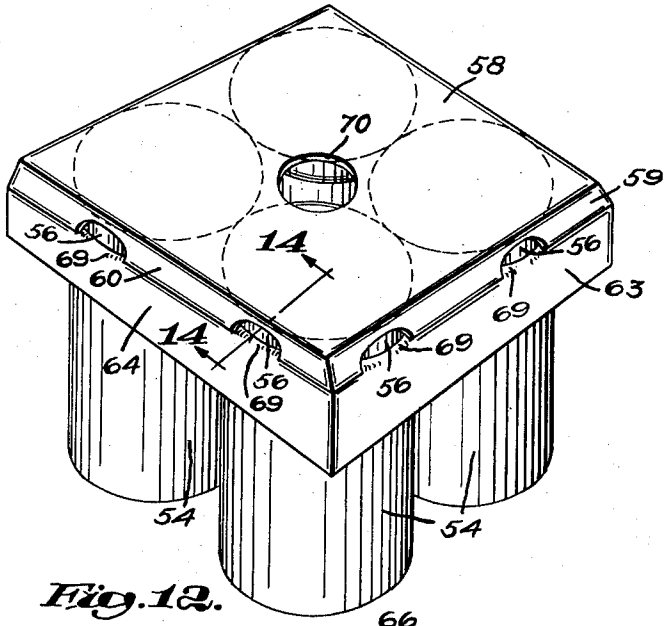


Fig. 12.

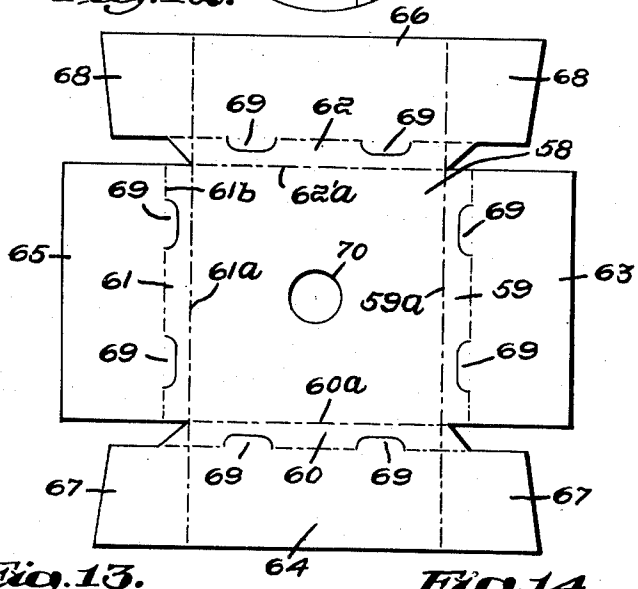


Fig. 13.

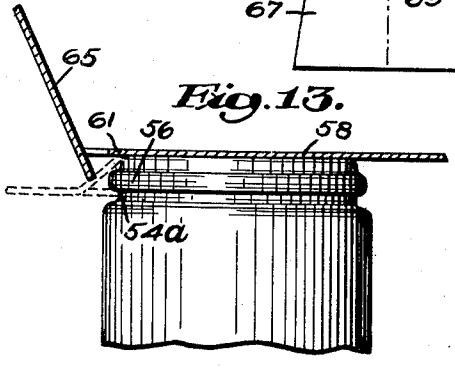
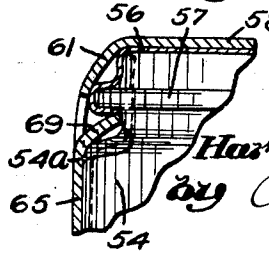


Fig. 14.



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CARTON FOR CANS AND SIMILAR OBJECTS

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Fig. 15.

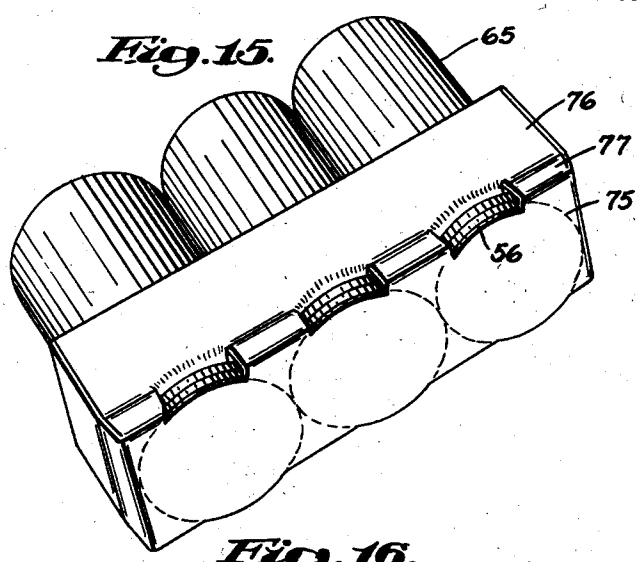


Fig. 16.

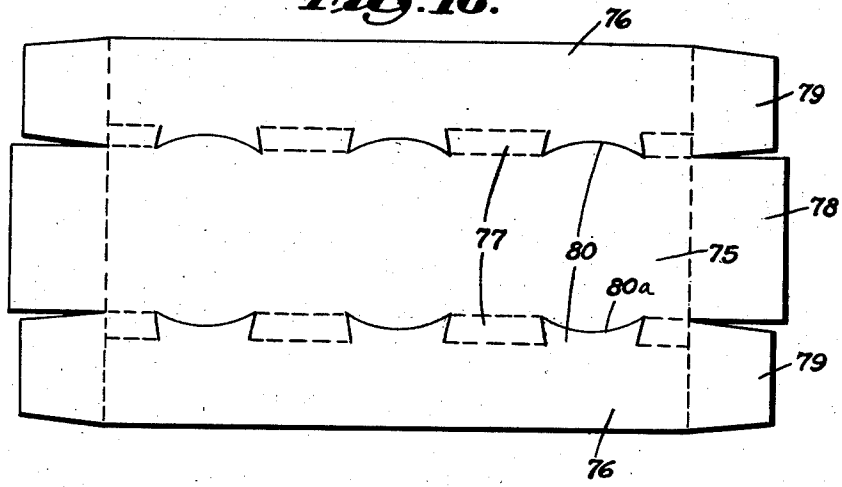
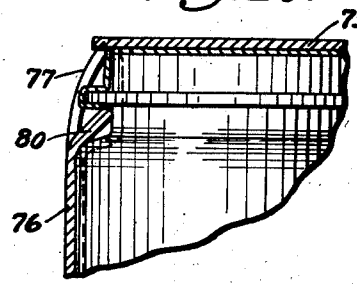


Fig. 17.



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Fig. 18.

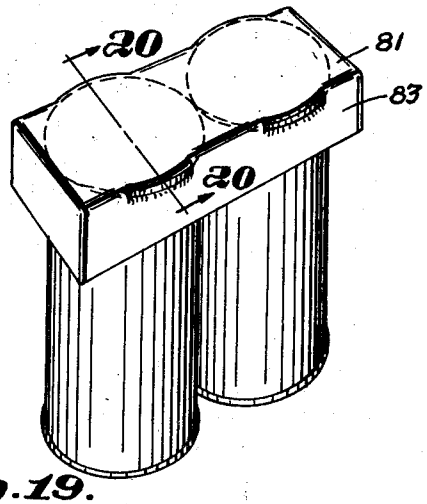


Fig. 19.

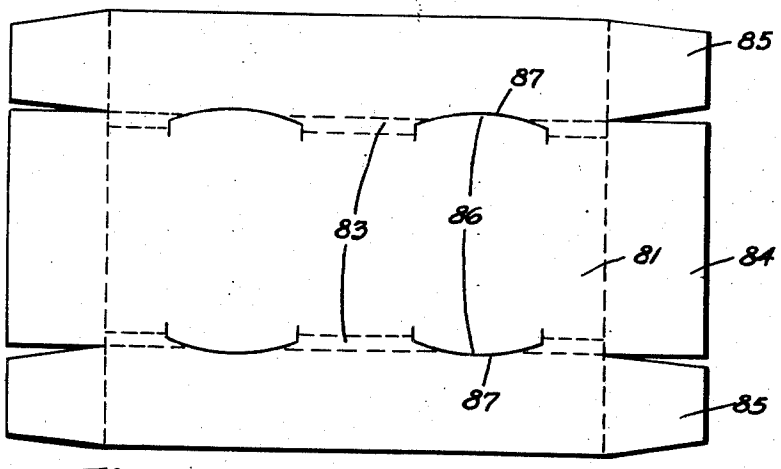
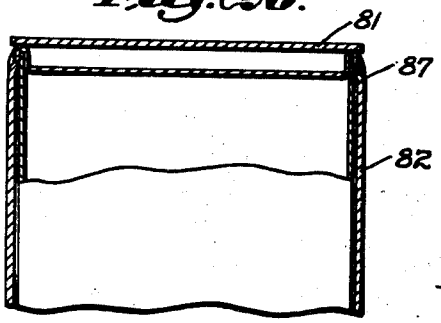


Fig. 20.



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United States Patent Office 2,798,603 Patented July 9, 1957

2,798,603

CARTON FOR CANS AND SIMILAR OBJECTS

Harold Grinspoon, Springfield, Mass.

Application May 9, 1955, Serial No. 506,869

15 Claims. (Cl. 206—65)

This invention relates to cartons of the general type employed for packaging a group of articles, such as cans or glass jars for display or sale as a unit.

The custom of selling canned beverages, foods and other materials, in groups of two or more, packaged as a unit in a form which the customer can conveniently carry, is becoming increasingly popular. A number of types of cartons ordinarily made of paper board, have been devised for this purpose. In general, a carton for this purpose must hold the articles securely in compact arrangement, must display the articles in an attractive manner, and yet must be sufficiently cheap to manufacture and pack so that the package does not materially increase the cost of the goods. Such cartons ordinarily have open ends, or openings elsewhere to display the contents of the package and particularly the labels on the articles, and for this reason, some form of locking device is employed to keep the articles in place. An example of an open-ended band type carton for chined cans is illustrated in Patent No. 2,571,833 to Chidsey. In that case the locking device consists of a pair of flaps extending from the top and bottom walls of the carton at each end. The flaps are bent inward, and their inner edges engage the inside of the chines. The middle cans are held in place by the end cans. The band must be pre-assembled and folded in before the carton is filled. This type of lock is suitable primarily for cans with recessed ends and cannot be used, for example, on glass jars with flat ends.

The general object of this invention is to produce a carton for cans which requires a minimum of paper board, which need not be pre-assembled before packing, which can be readily packed by hand or by high speed automatic machinery, and which securely holds the articles while leaving uncovered a substantial part of the sides where the labels are customarily placed. Another object is to produce a locking device for cartons of the type to which the invention pertains, which securely holds an article against sidewise or endwise displacement and also keeps it from turning, so that the label stays in the proper position. Another object is to produce a locking device which is effective on smooth topped jars, as well as cans with recessed ends. Another object is to produce a carton in which all the articles are held by locking devices so that the articles need not touch one another and can be removed individually. Other objects and novel features will be apparent from the description which follows:

In the drawings illustrating the invention:

Fig. 1 is a perspective view of a band type of carton for chined cans, constructed according to the invention;

Fig. 2 is a plan view of the blank of which the carton of Fig. 1 is made;

Figs. 3, 3*a* and 3*b* are transverse cross-sectional views, partly broken away and somewhat enlarged, showing the carton in the progress stages of assembly on to a row of cans;

Fig. 4 is an enlarged cross-section, partly broken away, along line 4—4 of Fig. 1;

Fig. 5 is an enlarged cross-section taken near the top of one of the cans, for example along line 5—5 of Fig. 1;

Fig. 6 is an enlarged plan view, partly broken away, of one end of the carton of Fig. 1;

Fig. 7 is a perspective view of a modified form of carton for chined cans;

Fig. 8 is a plan view of the blank from which the carton of Fig. 7 is made;

Fig. 9 is an enlarged detail plan view of an alternative form of locking device which may be used on the cartons of Figs. 1 or 7;

Fig. 10 is a cross-section, taken in the region of line 10—10 of Fig. 9, showing the locking device of Fig. 9 assembled on a can;

Fig. 11 is a perspective view of a modified form of the carton, suitable for packaging a group of covered glass jars;

Fig. 12 is a plan view of the blank from which the carton of Fig. 11 is made;

Fig. 13 is an enlarged cross-section in the region of one of the locking devices of Fig. 11 showing the carton in the process of assembly on to the jars;

Fig. 14 is an enlarged cross-section taken in the region of one of the locking devices of Fig. 11, for example along line 14—14;

Fig. 15 is a perspective view of a modified type of carton for glass jars;

Fig. 16 is a plan view of the blank from which the carton of Fig. 15 is made;

Fig. 17 is a cross-section, somewhat enlarged and partly broken away, taken along line 17—17 of Fig. 15;

Fig. 18 is a perspective view of a further modification of the carton, suitable for chined cans;

Fig. 19 is a plan view of the blank from which the carton of Fig. 18 is made; and

Fig. 20 is an enlarged cross-section, partly broken away, taken along line 20—20 of Fig. 18.

The carton shown in Figs. 1 through 6 is designed to hold four chined cans, for example beer cans. The cans 22 have chines 23 at the top and 24 at the bottom, and the chines project both sidewise and endwise. The sidewise projection is normally formed by crimping the rims of the metal end closures over the edge of the body, and is relatively small. The ends of the cans may be flat or may be somewhat bowed outward in the center and recessed only around the rim. The blank shown in Fig. 2 consists of a back wall 25, a top wall 26, a front strap 27, bottom strap extension 28, a bottom wall 29, and a connecting tab 30. The blank is scored along lines 31 and 32 and also along interrupted lines 33 and 34 to facilitate folding the blank into rectangular band form. Along the margins of the back wall are cut a series of flaps 35 and 36 with rounded corners. Score lines 33 run between the bases of flaps 35, and score lines 34 run between the bases of flaps 36. The blank is not scored along the bases of the flaps. Near the base of each flap 35 is a slit 37, and likewise, each flap 36 has a slit 38 near its base. The flaps are scored on either side of the slits. A handle 39 may also be struck out of wall 25.

To insert a row of cans in the carton, the top and bottom walls are folded back with respect to the rear wall 25 beyond the perpendicular, as indicated in Fig. 3. Flaps 35 and 36, as previously stated, are not scored along their bases, and follow the top and bottom walls, opening up to form openings 40 and 41 in the rear wall. The cans are laid on wall 25 with their top chines 23 entering the openings 41 and their bottom chines entering the openings 40.

As walls 26 and 29 are returned to a position parallel to wall 25, as shown in Fig. 3*a*, flaps 35 and 36 are bent by contact with the ends of the can. Portions 35*a* and

36*a* are forced to follow the motion of walls **29** and **26**, respectively (either by hand or by suitable holders on an automatic machine), breaking open the slits **37** and **38**. The flaps tear slightly at the corners of the slits so that portions **35***a* and **36***a* become, in effect, separate intermediate flaps. As the walls **26** are advanced toward their final positions, these intermediate flaps become lodged against the inside faces of the chines of the can and bend slightly as shown in Fig. 6. The intermediate portions **35***b* and **35***c*, and **36***b* and **36***c* of the respective flaps tend to bend around to follow the curvature of the chines, as indicated in Figs. 5 and 6, the faces of these portions being disposed against the inside of the chine. The scoring of these portions, and the openings formed by the slits, relieve the paper board at these points so that it may shape itself more readily to the chines. These side portions also tend to pull down on the intermediate flaps and keep them bent down inside the chines. This combination of locking effect holds the can tightly against the back wall and also secures it against sidewise movement in either direction.

After the top and bottom walls have been folded to their final position, the front strap **27** and connecting tab **30** are bent toward each other and the tongue **30***a* of the latter inserted in the slit **27***a*. It is understood that these parts may be glued or stapled together, but the connection here shown is ordinarily more convenient. Before the tab **30** is bent up, the strap extension **28** is bent in and pushed under the two middle cans. This extension takes some of the strain off the tongue when the package is picked up.

The top and bottom walls, in the middle, are of a width slightly less than the outside diameter of the chines, preferably by about the thickness of the chine, further allowance being made on the bottom wall for the overlap of the strap.

It will be noted that the two end cans are almost wholly exposed around two sides so that the can label can be fully displayed. Another advantage of the locking feature just described is the fact that the flaps jam tightly enough inside the chines to prevent the cans from turning around, so that the label will remain in the proper position. The carton can be assembled in packing without any glue or staples and is very simple to manipulate either by hand or by automatic machinery. In particular, the carton is suitable for high speed packaging machines of the "straight run" type, as all of the fold lines lie in the same direction. The blanks can be shipped and stored in flat condition and require no intermediate assembly step, or prefolding of the locking devices as do many of the cartons now on the market. As the locking flaps are struck out of the body of the blank rather than forming extensions of the wall, the blank can be formed from a strap the width of the rear wall, with very little waste. A single can can be removed by forcing the locking flaps, without removing the others, or all of the cans can be easily removed at once by opening the front strap. Two of the cartons of the type just described can be glued back to back to form a six or eight can pack.

In Figs. 7 and 8 a modified form of carton for cans having top and bottom chines is shown. The blank consists of a rear wall **43**, top and bottom walls **44** and **45**, respectively, and side walls **46** and **47**. The top and bottom walls carry pairs of end tabs **48** and **49**, respectively, which are joined in any suitable manner to the side walls when the carton is assembled. Locking flaps **50** and **51** are disposed along the top and bottom margins of rear wall **43** and are similar in every respect to flaps **35** and **36** in the form previously described. This carton is assembled around the row of cans in the same manner as the carton previously described by first bending back walls **44** and **45** to bring the flaps **50** and **51** outside the ends of the cans and then folding the walls over to their final position. The joining tabs are then secured to the end walls in any convenient manner, for example by glue, staples or tape. The cans are securely held against removal and yet the entire front faces of all four cans are exposed. As previously explained, the flaps jam sufficiently tightly so that the cans will not easily turn out of position. Either of the above types of cartons may be used for cans or cylindrical boxes, with recessed ends, but without sidewardly projecting chines, or for articles such as tumblers.

In Fig. 9 a modified form of locking flap is shown. This type of flap may be applied to either of the blanks previously discussed in place, for example, of the flaps **35** and **36** in Fig. 2. Fig. 9 is illustrated as somewhat enlarged to show the configuration of the flap more clearly. The blank is applied to a row of cans, as previously described. The flap has a central part which performs the function of flap portions **35***a* or **36***a*, and also has side tabs **52***a* and **52***b* which bend back and also sidewise to conform to the curvature of the chine. When this flap is locked in place, the margin **53***a* adjacent the cut forming the flap engages under the outer edge of the chine. This device locks the can in the vertical direction, as well as sidewise, and can be used in a "top holder" carton of the type shown in Figs. 18–20.

In Figs. 11 through 14 a carton is illustrated for packaging together a group of four jars having smooth topped metal lids, for example jars of the type used for baby food. These jars have reduced necks at the top, and the lid is somewhat smaller in diameter than the body of the jar. The general shape of such a jar is shown in Figs. 13 and 14. The jar **54** has a shoulder **54***a* leading to a reduced neck **55**, and the lid **56** is pressed on over a bead **57** on the neck. It will be noted that there is a gap between the lid **56** and shoulder **54***a*.

As shown in Fig. 12, the blank for forming the holder of Fig. 11 consists of a top wall **58**, intermediate walls **59**, **60**, **61** and **62**, and side walls **63**, **64**, **65** and **66**. The top wall is defined by score lines **59***a*, **60***a*, **61***a* and **62***a*. Side walls **64** and **66** have pairs of end tabs **67** and **68**, respectively, which are joined to walls **63** and **65** when the carton is packed. Two flaps **69** are struck out of each of the intermediate walls, and the blank is scored between the bases of the flaps. As shown in Fig. 13, the top wall **58** is placed over the lid of a jar and the side wall **65** bent back along the score lines **61***b* carrying with it the flaps **69**. It is not necessary to bend the wall **65** beyond the perpendicular because of the fact that the lid is set in somewhat from the side of the jar and the bases of the flaps are spaced away from the lid. Intermediate wall **61** is then bent down along line **61***a*, and flap **69** inserted under the edge of the lid in the opening between the lid and the shoulder **57**. The position of walls **61** and **65** in the intermediate stage is shown by the dotted lines. Wall **65** is then bent down to lie along side the jar, jamming flap **69** under the edge of the lid, as shown in Fig. 14. The same procedure is followed in bending down walls **63**, **64** and **66**. Each of the four jars is thus engaged by two flaps which enter the opening between the lid and the shoulder. The end tabs **67** and **68** are connected in any convenient manner to the respective side walls. The four jars may be readily lifted and carried together, for example by a hand hole **70** in the top, and the jars will not drop out. The entire label of each jar is exposed for display and, as in the band types of carton, the locking flaps jam tightly enough so that the jars will not turn out of place. In this type of holder, removal of one jar will free the others.

The holder illustrated in Figs. 15–16 is a "top holder" carton for single row jars of the type illustrated in Figs. 13 and 14. The blank has a top wall **75**, side walls **76**, intermediate wall portions **77**, defined by score lines, and end flaps and tabs **78** and **79**, respectively. Flaps **80** are struck out of the intermediate walls and have inner edges **80***a* curved to approximately follow the contour of the jars. This holder is applied in the same manner as that of Figs. 11–14, by bending the side walls upward,

engaging the flaps under the jar rims, and then bending the side walls down, and finally securing the end tabs to the end flaps. In this holder, each jar top is locked on two opposite sides and the remaining jars will stay in place when one jar is removed.

The holder of Figs. 18–20 is a similar top holder for a single row of chined cans. The blank has a top wall **81**, side walls **82**, intermediate walls **83** defined by score lines, and end flaps and tabs **84** and **85**, respectively. Curved slits **86** are cut in the intermediate walls, and the margin portions **87**, adjacent the slits, will bend sufficiently to act as flaps engaging under the relatively narrow chines when the holder is applied in the same manner as the holders of Figs. 11–17. In this holder one can can be removed without disturbing the others. It is understood that the single row holders illustrated in Figs. 15–20 can be extended, if desired, to hold a larger number of cans.

What is claimed is:

1. In the combination of a paper board carton having two walls disposed at an angle to each other and an article having a bead-like projection, a locking device for the article comprising: a bent flap struck out of one of said walls, the flap having a free edge, a base and a face disposed intermediate said base and edge, said face engaging said projection.

2. A locking device as described in claim 1, the flap being struck from one wall and having its base connected to the other, and the projection lying between said face and the plane of the wall from which the flap is struck.

3. A locking device as described in claim 1, said base being connected to the wall from which the flap is struck, and the projection lying between said face and the other wall.

4. In the combination of a row of like articles having upwardly projecting top rims and downwardly projecting bottom rims, with a carton having a top wall overlying said top rims, a bottom wall underlying said bottom rims, and a side wall joined to said top and bottom walls, a first set of flaps struck from said side wall and having bases connected to said top wall, a second set of flaps struck from said side wall and having bases connected to said bottom wall, said first and second sets of flaps lying within and engaging the top and bottom rims, respectively, of the articles in such a manner as to press the articles toward said side wall, and means securing said top and bottom walls in substantially parallel relationship, while leaving the sides of the articles substantially exposed on the side opposite said side wall.

5. The combination as described in claim 4, the means securing the top and bottom walls comprising a central strap connecting said top wall to said bottom wall on the side opposite said side wall.

6. The combination as described in claim 4, the means securing the top and bottom walls comprising a pair of end wings connecting the top and bottom walls.

7. A blank for forming a paper board carton, comprising a top wall portion, a bottom wall portion, and a side wall portion disposed intermediate, and connected to, said top and bottom wall portion, a first series of flaps struck out of the side wall portion and having bases connected to the top wall portion, a second series of flaps struck out of the side wall portion and having bases connected to the bottom wall portion, the blank being scored along parallel lines between the bases of each series of flaps, and each flap having a slit spaced from its base and running in the general direction of the score lines.

8. In the combination of a carton with an article having an end with an endwardly projecting rim, the carton having a first wall overlying the end of the article and a second wall connected to the first and disposed along one side of the article, a locking device comprising a flap struck out of the second wall and having a base connected to the first wall, the flap having an intermediate region lying substantially to and engaging the inside of the rim, and an end portion disposed between the end of the article and the first wall.

9. A locking device as described in claim 8, the end portion comprising a continuous substantially U-shaped piece connected to the intermediate portion in two spaced regions.

10. A locking device as described in claim 8, the end portion comprising a pair of spaced tabs.

11. The combination of a carton with an article having a top with a sidewardly projecting rim, the carton comprising a top wall overlying the top of the article, a side wall connected to the top wall and extending down the side of the article, and a flap struck out of said side wall and bent toward the article, the flap having an inner edge, and an outer surface, and a substantial portion of said surface adjacent said edge engaging the under side of said rim.

12. The combination as described in claim 11, said flap having a generally U-shaped edge, and the surface portion engaged with said rim being disposed adjacent the base of the U.

13. The combination as described in claim 11, the article being substantially cylindrical, and the flap having a curved inner edge substantially following the curvature of the article.

14. The combination as described in claim 11, the flap having a substantially straight inner edge, and side edges defined by straight slits.

15. The combination of a carton with a group of jars arranged in two rows, the jars having reduced necks and flat lids with rims overhanging the necks, the carton comprising a top wall overlying the lids, intermediate walls attached to said top wall and extending downward alongside said lids, side walls attached to said intermediate walls and extending down the sides of the jars, and flaps struck out of said intermediate walls and having bases connected to said side walls, the flaps being bent inward toward said necks and engaging under said rims.

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