Oct. 21, 1958 O. JOHNSON 2,857,048

SELF-LOCKING CARRIER FOR CANS OR LIKE CONTAINERS

Filed April 19, 1957

FIG_1

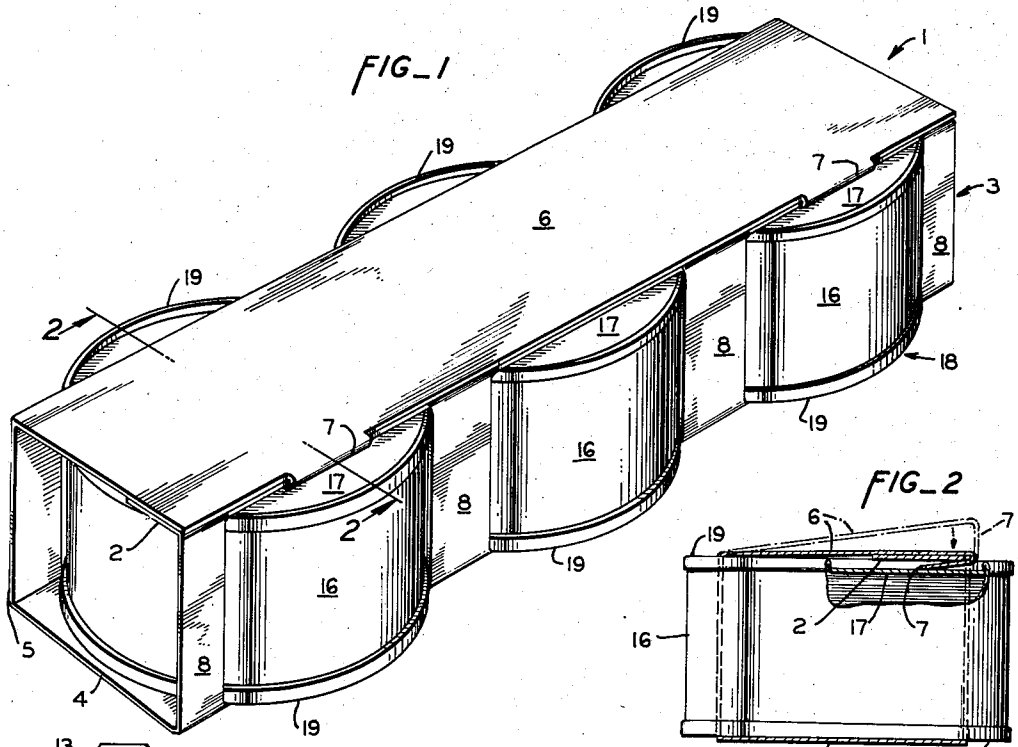


FIG_2

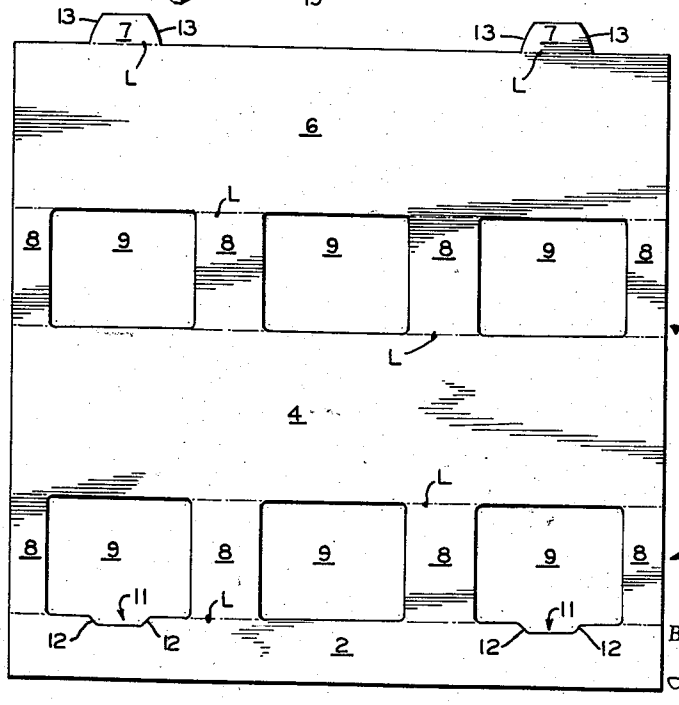


FIG_3

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SELF-LOCKING CARRIER FOR CANS OR LIKE CONTAINERS

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5 Claims. (Cl. 206—65)

This invention relates generally to self-locking cartons or carriers for cans or like containers, and more particularly to a carton or carrier formed from a single sheet of flexible material, desirably paperboard, and which is formed with means imparting self-locking characteristics thereto, thereby precluding the need for adhesives, staples or other auxiliary fastening means in setting up the carton.

Cartons or carriers of the type here involved are particularly well suited for uniting positively a plurality of containers of the chime can type into compact packages which may be easily handled by the ultimate consumer. However, because of the self-locking nature of the carrier, the consumer may readily and easily remove the containers from the carrier without performing the often exasperating task of tearing or otherwise forcibly opening a carrier which has been glued or stapled around the containers.

Summarizing this invention it has as its object, among others, the provision of an improved carton or carrier which can be formed with economy from a special single blank of flexible sheet material, desirably paperboard, scored or creased to aid in forming the carrier into its set up condition. Another object of this invention is the provision of self-locking means on the carrier which allow the carrier to be maintained in set-up condition around one or more can type containers without the need of adhesives, staples or other auxiliary holding means. Another object of this invention is the provision of a carrier which may be set up around a plurality of containers with great ease either manually or by a machine adapted to perform the setting-up operation. A further object of this invention is the provision of a carrier which is intended to secure together in package form a plurality of can type containers of varying sizes, the number of containers retained in said package being governed, as a practical matter, by the size and weight of the individual containers. Other objects of the invention will become apparent from a study of the following description.

Generally, the carton or carrier of the instant invention comprises an elongated cover or bottom panel from the opposite margins of which extends upright apertured side walls or side panels integrally and hingedly secured thereto. Hingedly connected to the side walls is another cover panel formed in two parts in the form of overlapped inner and outer cover flaps. Each of the cover flaps is hingedly connected to one of the side walls at the margin spaced from the first mentioned cover or bottom panel. One of the cover flaps overlies the cans or containers retained in the carrier while the other cover flap in turn overlies the first cover flap and is retained in that position by means of bendable lock tabs which underlie the first mentioned cover flap. The carrier thus provided securely retains a plurality of containers, desirably cans, in a compact package which is easily handled by the ultimate consumer.

Reference is now made to the drawings for a more detailed description of the carrier and the package formed when the carrier is used with a plurality of can type containers, in which:

Fig. 1 is an isometric view of the carrier of the instant invention in set up condition formed around a plurality of three cans, thereby producing a compact package in which the cans cooperate with the carrier to maintain the package closed.

Fig. 2 is a vertical section of the set up package taken in a plane indicated by line 2—2 of Fig. 1, the can being only partially shown in section. In this view the phantom lines show the carrier just before the locking tabs on one cover flap are tucked under the cooperating cover flap to lock the carrier in set up condition around the cans.

Fig. 3 is a plan view of the outer surface of a paperboard blank from which the carrier is set up. In this view crease lines are shown as dot-dash lines while all cuts are shown as solid lines; the blank is illustrated on a reduced scale as compared to Figs. 1 and 2.

Referring first to Fig. 3, the blank illustrated, which desirably is made from paperboard but may be made from any other suitable foldable material, is provided with a series of longitudinally extending parallel crease lines L which facilitate setting up of the blank and insure folding of the blank at the proper locations during the setting up operation. The crease lines L desirably, but not necessarily, are formed in the outer surface of the blank to facilitate folding of the various blank sections into a completed carrier. As will be noted, the blank is of substantially rectangular shape and therefore is readily and easily formed from paperboard or like material with a minimum of waste material. For identification purposes both the blank and the set up carrier generally are identified by reference numeral 1.

The crease lines L form, in the order indicated from the bottom to the top of the blank 1 as illustrated in Fig. 3, a cover flap 2, an apertured side wall 3, an elongated cover panel or bottom panel 4, another apertured side wall 5, another cover flap 6, and a plurality of tuck-in locking tabs 7 which extend from the free margin of the last named cover flap. Cover flaps 2 and 6 cooperate to form a cover panel or top wall which lies above and extends parallel to the first named cover panel or bottom wall 4 when the carrier is set up.

The side walls 3 and 5 are formed in the shape of elongated, preferably rectangular strips 8 which are spaced apart or separated from adjacent strips by enlarged apertures 9. The function and purpose of the apertures will become apparent as this description continues. In the embodiment shown three such apertures 9 are formed in each side wall, but the exact number of apertures so formed will vary depending on the number of cans intended to be retained in the carrier. It should be noted, however, that the apertures 9 in each side wall are of the same size and each aperture is in substantial alignment with the corresponding aperture in the opposite side wall.

In the particular embodiment shown the apertures extend the entire height of the side walls although in certain instances it would suffice to have only small apertures or cut outs formed in the side walls at locations adjacent the juncture of the side walls with the

bottom panel 4 and each of the cover flaps 2 and 6 for a purpose which will be described later.

As is readily apparent from a further study of Fig. 3, cover flap 2 has formed therein a plurality of cut out portions which form notches 11. In the embodiment shown only two notches are employed but it should be understood that the number of notches may vary with the size of the carrier and the contents thereof.

Notches 11 extend into cover flap 2 from a position located on an extension of crease line L extending between cover flap 2 and side wall 3. Desirably the cover flap notches 11 open into respective enlarged apertures 9 formed in side wall 3 but it should be understood that the cut out portions or notches could be formed as individual apertures in cover flap 2 at a location spaced slightly inwardly from the juncture of the cover flap and side wall. That is, the cut out portions 11 need not in all cases, communicate or open into side wall apertures 9, but it is advantageous to have them communicate with such apertures 9, in that a more securely locked package is obtained thereby.

The notches 11 have tapered side edges 12 adapted for frictional engagement with tapered or rounded edges 13 on the tuck-in lock flaps 7, to be described presently, formed on the free margin of the other cover flap 6. The base or bottom of each of the notches 11 is shown as being straight, but it may take any desired shape as there is contact only between the sides 12 of the notches 11 and the opposite edges 13 of the locking tabs 7 when the carton is set up.

Extending from the free marginal edge of cover flap 6, as shown in Fig. 3, are a plurality of tuck-in locking tabs 7. The exact number of locking tabs used will vary with the size of the carrier and the number of cans intended to be carried therein. However, in all cases the number of locking tabs 7 will correspond with the number of notches 11 formed in the opposite cover flap. In the embodiment shown, only two locking tabs 7 and two notches 11 are utilized because the instant carrier desirably is intended to be manually set up and a packer therefor can readily set up the carrier merely by using one hand on each locking tab, as will be described hereinafter.

Referring now to Fig. 1, in the illustrated embodiment, three cans are shown in the carrier package, each having top and bottom ends 17 and 18 respectively, with conventional chimes 19, but it should be understood that more or less than three cans may be retained in the carrier or carton 1 of the instant invention, depending on the size and weight of the cans so retained.

As shown in Fig. 1, standard chime type cans 16 are aligned in abutting relation on the cover panel 4, hereafter referred to as a bottom panel, with opposite peripheral portions of each can 16 extending transversely beyond each of the upright parallel side walls 3 and 5 through the aligned apertures 9 formed therein. The extent to which the cans 16 protrude from the set up carrier 1 may vary from the relative amount shown to a larger or smaller degree than shown, the only requisite being that at least part of each can 16 must extend beyond the side wall to preclude longitudinal movement of the cans as well as to provide a space so that the locking tabs 7 may be folded or tucked between the tops 17 of cans 16 and the cooperating cover flap 2. In this respect, it should be noted that the apertures may be omitted from one of the side walls, with the cans protruding only from the other of the side walls. This latter structure is slightly less desirable than the illustrated embodiment, however.

It also should be noted that with a carrier of the instant invention, cans 16 are securely retained therein without any bowing or bending outwardly of the carrier side walls 3 and 5. The package produced by using this invention is thereby attractive and compact yet securely fastened.

In certain instances it may suffice if only small cut out apertures of limited extent are formed at spaced aligned intervals adjacent the top and bottom of each of the side walls 3 and 5. In such an embodiment, only limited portions of the can chimes 19 will extend beyond the side walls but sufficient space still will exist in such small apertures to allow insertion of the locking tabs 7 therein.

In the preferred embodiment, the apertures 9 extend for the entire height of the side walls 3 and 5, and substantial portions of the cans 16 extend therethrough. In this respect, it is unnecessary to provide closed ends in the carrier 1 in that the cans 16 are precluded from longitudinal separation from the carrier due to portions thereof which protrude through the side walls 3 and 5.

Furthermore, the enlarged side wall apertures 9 through which portions of the cans protrude permit descriptive advertising portions of the can labels to be readily seen, thereby allowing the consumer to immediately recognize the contents of the carrier as well as the manufacturer of the product. This visual feature may be very important in certain cases in that it will allow inexpensive plain paperboard to be used for the carton rather than more expensive printed paperboard which describes the contents and brand of the product retained therein.

The carton 1 desirably is set up by hand in the following manner: a plurality of chime type cans 16, three in number in the embodiment shown but which number may be larger or smaller than three, are placed in abutting relation on the bottom cover panel 4 of a blank 1 of the type shown in Fig. 3. The blank 1 may be positioned in any convenient way with respect to the packer but experience has shown that the package consisting of the cans and carrier may be more readily assembled if the blank 1 is placed flat before the packer with the locking tabs 7 facing the packer. With the blank 1 so oriented and the cans 16 located thereon, side wall 3 and cover flap 2 are first bent upwards with portions of the cans 16 protruding through the wall apertures 9. Cover flap 2 is then bent over into contact with the chime rings 19 formed on the tops 17 of cans 16. Thereafter, side wall 5 and cover flaps 6 are deformed upwardly around cans 16 in the same manner described above with respect to side wall 3. Cover flap 6 is then bent to overlie cover flap 2 as well as those portions of can tops 17 which are not covered by cover flap 2.

In this respect it should be pointed out that cover flap 2 may be of any convenient width but it is not necessary that it extend across the entire periphery of the can portions enclosed by the carrier 1. A substantial savings in material is effected thereby in that cover flap 2 need only be wide enough to insure proper locking engagement of locking tabs 7 with cut out portions 11 when the carrier is set up.

Continuing with the setting up operation, after cover flap 6 is bent to overlie cover flap 2, locking tabs 7 are then deformed downwardly, using two fingers, to the phantom line position shown in Fig. 2. When the tabs 7 are in this position, it is then an easy matter, by using the same two fingers, to fold or tuck the tabs 7 under cover flap 2 into the self-locking full line position shown in Fig. 2.

The folding or tucking of the tabs 7 is quite easy to accomplish in that the tabs readily slide on the tops 17 of the cans 16 into the locked position shown.

A further study of Fig. 2 shows that the locking tabs 7, when in locked position, do not necessarily lie flat against the can tops 17, although if the carton 1 is used with certain flush top containers such might be the case. When used with the illustrated chime type can containers 16, however, the carrier locking tabs 7 contact the can tops 17 only at limited areas adjacent the tab ends. The tabs 7 thereby utilize the inherent resilience or flexibility of the paperboard and maintain strut-like flexible bending engagement with the can tops 17, there-

by enhancing the self-locking characteristics of this invention.

It also should be pointed out that the slightly rounded or tapered edges 13 of locking tabs 7 are frictionally and tightly engaged with corresponding tapered sides 12 of the notches 11 formed in cover flap 2. The contacting edges 12 and 13 function to produce a saw-type locking effect thereby precluding the inadvertent separation of the tabs 7 from the notches 11 intended to receive the tabs whereby the tabs are retained securely in place.

In certain instances, such as when the instant carton is used to package flush, flat top containers having no chime rings, the notches 11 on cover flap 2 may be eliminated. In such case, the locking tabs 7 would be folded back double to a position parallel to both the cover flap 2 and the flush tops of the containers and securely held therebetween by the tight engagement of the cover flap with the flat container tops. However, the more desirable embodiment of my invention is as described previously and illustrated in the drawings.

Although the carrier blank 1 of the instant invention is described as being set up desirably by hand, it should be pointed out that an appropriate jig or fixture could be used without departing from the concept of this invention. Furthermore, it is also contemplated that an appropriate machine may be used in certain instances to automatically package a plurality of cans in a carton or carrier of the type disclosed.

Although a carrier of the type disclosed may be used to package containers, desirably cans, of various shapes and sizes, the carton has been shown in Fig. 1, on slightly reduced scale, as being utilized with No. ½-flat cans of the type commonly used to package tuna or similar fish products.

To aid in this description, one specific example will be described of the use of the instant carrier. As stated above, No. ½-flat cans, having a right circular cylindrical periphery, containing various types of fish are particularly well suited to be used with this invention. No. ½ round cylindrical flat top cans generally are approximately 3⅜" in diameter and 1¾" in height. When used with three cans of such nature the blank of my invention is approximately 9¾" across, excluding locking tabs 7, and 10¼" wide. The cans therefore are substantially flush with the open ends of the set up carton, as shown in Fig. 1. Locking flap 2 is approximately 1" across, while side walls 3 and 5 are approximately 1¾" high, thereby corresponding to the height of the No. ½ cans. The side wall apertures 9 are approximately 1¾" high by 2¼" wide. Bottom panel 4 and cover flap 6 are approximately 2⅝" across. It readily follows that each can 16 extends beyond the described carton 1 about ⅜" on each side.

The dimension of the locking tabs 7 and notches 11 may be varied as desired but in the specific embodiment disclosed, locking tabs 7 extend ½" beyond cover flap 6 while notches 11 extend into cover flap 2 approximately ⅛". The carrier of the particular type described has proved to be very effective in packaging cans of the No. ½-flat type.

It should again be stressed that the respective dimensions herein given are purely illustrative of one particular size carton embodying my invention. Various other size cartons may be used for packaging various size cans or containers.

Furthermore, the dimensions recited may be varied somewhat even when used with the No. ½-flat cans described above in that it may be desirable, under certain conditions, to have the cans protrude to a greater or lesser degree than disclosed above, or to protrude from only one side wall of the carrier.

It should become readily apparent that the carrier of the instant invention is a surprisingly simple yet very effective and inexpensive device for securing a plurality of containers in an easy to handle, compact package. The cans are securely retained in the carrier because of the self-locking feature disclosed, yet, because of the absence of adhesives, staples or other auxiliary fastening means, the cans are readily accessible and easily removable from the package by the ultimate consumer.

Having made a full and complete disclosure of my invention, I claim:

1. A package comprising a chime type can or the like retained in a self-locking carriage comprising a cover panel contacting said can, apertured side walls extending from opposite margins of said cover panel, portions of said can extending beyond said side walls through the apertures therein, first and second cover flaps extending one from each of said side walls, said first cover flap overlying and contacting the chime portion of said can and having a cut out portion formed therein adjacent the juncture with the side wall, said second cover flap overlying and contacting said first cover flap and having a tuck-in lock tab extending from a free margin thereof, said lock tab being folded under said first cover flap and engaged in said cut out portion, said can engaging the thus folded lock tab to maintain the package self locked.

2. A package comprising a plurality of cans or the like retained in a foldable self-locking paperboard carrier comprising an elongated bottom panel contacting one end of said cans, upright side walls extending from opposite edges of said bottom panel, said side walls comprising elongated strips separated by apertures through which opposite margins of said cans extend, a first cover flap extending from one of said side walls substantially parallel to said bottom panel and contacting the tops of said cans, a second cover flap extending from the other side wall and overlying said first cover flap, a plurality of small cut out portions extending into said first cover flap from the juncture of said first cover flap with said one side wall, a plurality of tuck-in lock tabs extending from the free margin of said second cover flap, said lock tabs being folded under said first cover flap whereby edge sections thereof are lockingly engaged in said cut out portions while other sections thereof resiliently engage the tops of certain of said cans.

3. A package comprising a plurality of containers securely retained in a self-locking carton comprising a cover panel which contacts one end of said containers, multi-apertured upright side walls extending away from said cover panel through the apertures of which opposite portions of the containers protrude, a cover flap extending from the margin of each of said side walls spaced from said cover panel, said cover flaps overlying said plurality of containers, a plurality of tuck-in lock tabs extending from the free edge of one of said cover flaps, said lock tabs being bent back substantially parallel to the cover flap from which they extend and being resiliently interposed between the other end of said containers and the other cover flap, whereby said containers and cartons are self-lockingly and securely maintained in package form.

4. An open-ended package comprising a plurality of chime type cans securely retained in a paperboard carrier comprising first and second spaced parallel cover panels engaging the chimes on opposite ends of said cans, apertured side walls connecting said cover panels and extending therebetween, the apertures of said side walls being of sufficient size to receive opposite portions of said cans therethrough, one of said cover panels comprising a first flap hingedly connected to one of said side walls and having a plurality of small cut out portions formed at the juncture with said side wall, and a second flap hingedly connected to the other side wall and having a plurality of locking tabs connected to the free margin thereof, each of said locking tabs being folded back through a cut out portion of said first flap to underlie said first flap and resiliently contact the top of one of said cans thereby providing a self-locking package.

5. A self-locked can or the like package comprising a can, a carrier of flexible sheet material about said can

and having a pair of opposite side walls at least one of said walls having an aperture through which a portion of the can projects to hold the can against displacement, a pair of opposite cover walls, one of said cover walls comprising a pair of overlapped flaps, and a lock tab on the outer of such flaps folded to underlie the inner of such flaps, said can engaging the thus folded lock tab to maintain the package self locked.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 2,857,048 October 21, 1958

Olaf Johnson

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 1, line 56, for "extends" read -- extend --; column 6, line 9, for "carriage" read -- carrier --.

Signed and sealed this 13th day of January 1959.

(SEAL)
Attest:

KARL H. AXLINE
Attesting Officer

ROBERT C. WATSON
Commissioner of Patents