May 18, 1954 P. A. TOENSMEIER 2,678,767

CARTON FOR LIKE ARTICLES

Filed Oct. 24, 1950 2 Sheets-Sheet 1

Fig. 1,

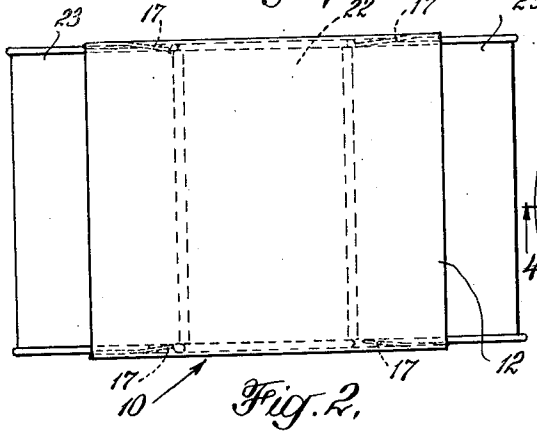


Fig. 3,

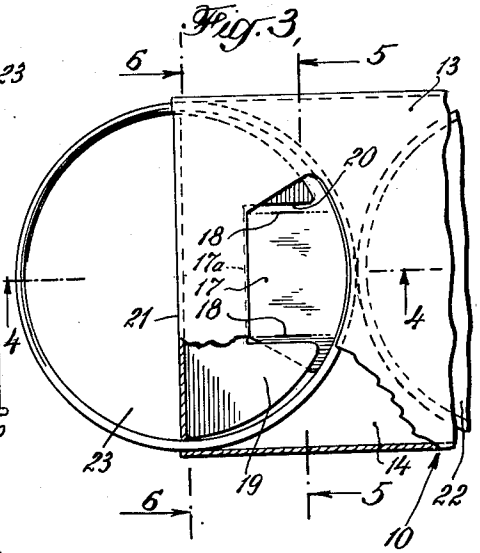


Fig. 2,

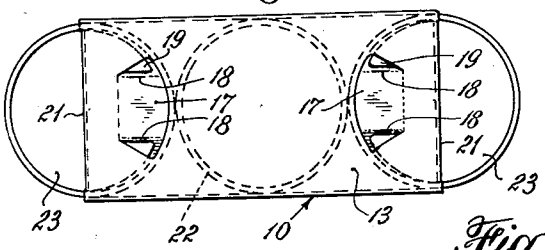


Fig. 4,

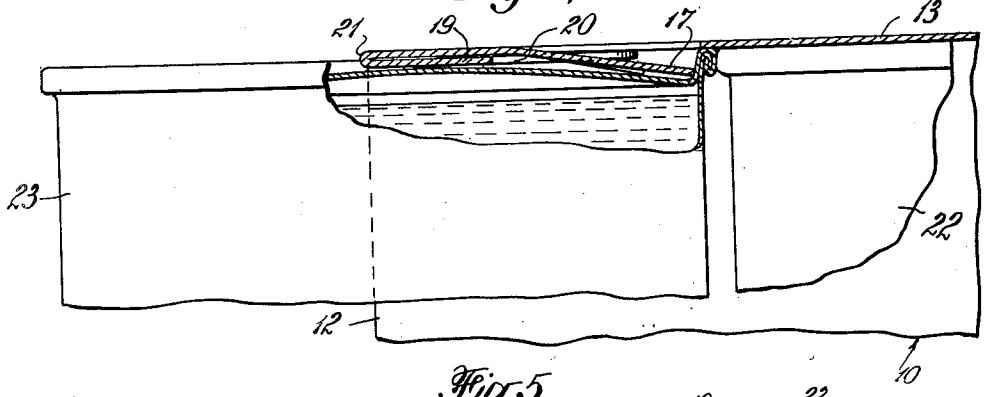
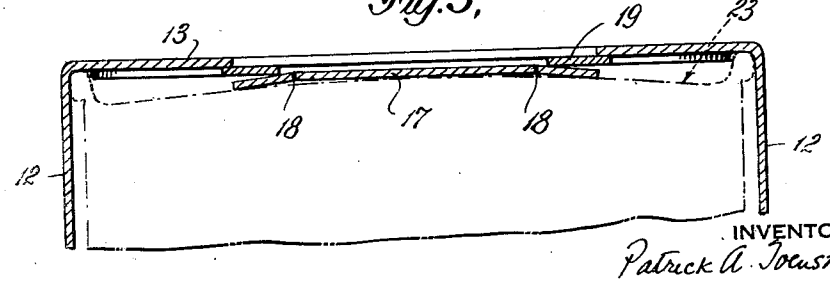


Fig. 5,



INVENTOR
Patrick A. Toensmeier
BY
Pennie Edmonds Morton Barrows
ATTORNEYS

May 18, 1954 P. A. TOENSMEIER 2,678,767

CARTON FOR LIKE ARTICLES

Filed Oct. 24, 1950 2 Sheets-Sheet 2

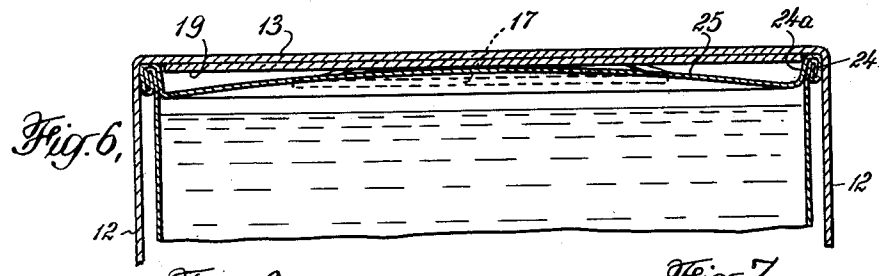


Fig. 6.

Fig. 8.

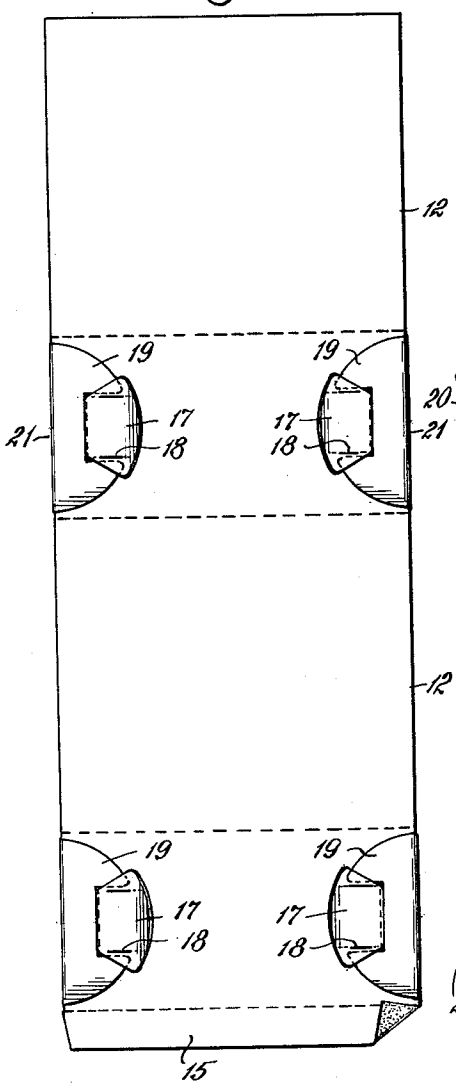
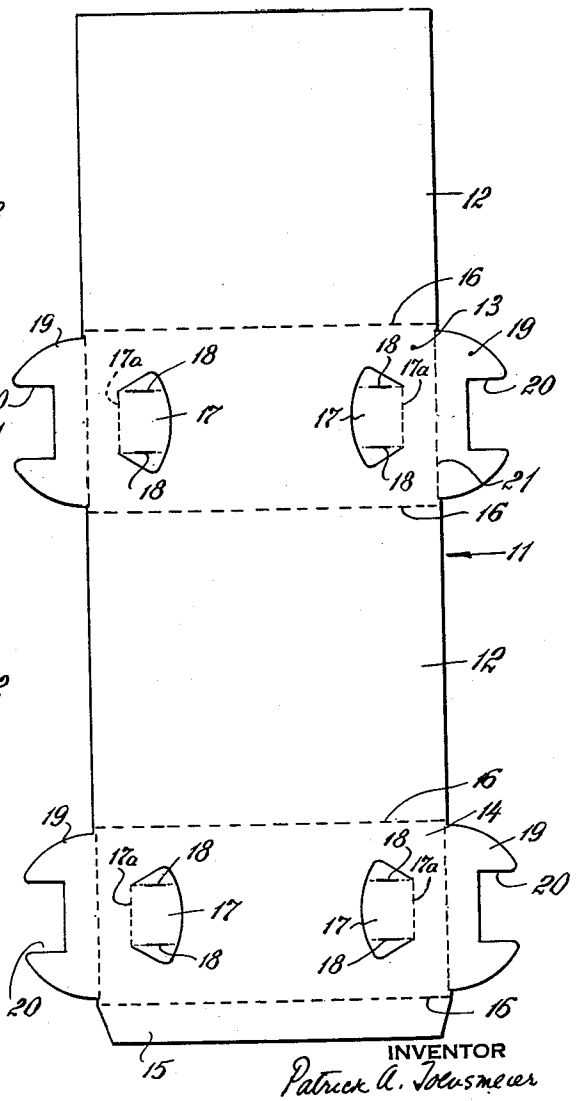


Fig. 7.



INVENTOR
Patrick A. Toensmeier
BY
Pennie Edmonds Morton & Barrows
ATTORNEYS

Patented May 18, 1954

2,678,767

UNITED STATES PATENT OFFICE

2,678,767

CARTON FOR LIKE ARTICLES

Patrick A. Toensmeier, Catonsville, Md., assignor to The Bartgis Brothers Company, Ilchester, Md., a corporation of Maryland

Application October 24, 1950, Serial No. 191,810

7 Claims. (Cl. 229—40)

1

This invention relates to cartons for use in the retail distribution of like articles and is concerned more particularly with a novel carton and a blank from which the carton is formed. The new carton has the form of a sleeve receiving a row of the articles with a snug fit and is provided with means engaging the end articles in the row and locking them in place. The carton may be used to especial advantage for the packaging of canned commodities, such as beer, and a form of the carton for that use will, accordingly, be illustrated and described in detail for purposes of explanation.

The carton of the invention is similar to but an improvement on that disclosed in the patent to Fuller 1,888,855, November 22, 1949. The Fuller carton is of the sleeve type and was devised for holding a plurality of individual light bulb containers each having the form of an open ended sleeve, square in section and made of corrugated paper with the corrugations exposed on the inner surface to engage the bulb therein. The carton is of a size to receive one or more rows of the bulb containers disposed vertically and side by side, so that the open ends of the containers lie at the top and bottom of the sleeve. To hold the containers in place, flaps are cut from the end walls at the top and bottom of the carton sleeve, each flap extending toward the middle of the sleeve from its root. After a row of bulb containers is inserted into the carton sleeve, the flaps are depressed into the end containers in the row and the free end of each flap enters a channel in the corrugations on the inside of the containers and is thereby held depressed. So long as the flaps remain depressed and in engagement with the end containers in each row, the containers are held in place and can be removed only by raising the flaps or destroying the carton.

The Fuller carton is satisfactory for packaging light bulb containers of corrugated paper, since the engagement of the ends of the flaps with the corrugations holds the flaps depressed. However, the carton cannot be successfully used in packaging articles, which have no means for engaging and holding the flaps depressed and, if the carton were filled with such articles, the resilience of the stock, of which the carton is made, would cause the flaps to be freed from the articles, so that the articles could fall out.

The present invention is, accordingly, directed to a carton of the sleeve type having side and end walls, as shown in the Fuller patent, which is provided with retaining flaps on at least one end wall adjacent the ends thereof, the flaps extending toward the middle of the carton from their roots and, preferably, being integral with the carton and defined by cuts. In addition, the carton is provided with means, by which the retaining flaps may be held depressed, so that their free ends lie in position to engage the articles within the carton and hold them in place. Preferably, the holding means are flaps integral with the end wall of the carton, to which the retaining flaps are attached, and extend outwardly from their roots. The holding flaps are then reversely folded to extend into the interior of the carton and they engage the retaining flaps and normally depress them. A number of cans having chimes or circumferential end beads on at least one end can be slipped into the carton past the flaps and the carton is of such dimensions and the flaps so formed and located, that, when the carton is full, the retaining flaps lie against the inner side of the beads of the end cans in the row and thus hold the cans in place. Since the beads on the cans do not have internal channels, in which the ends of the retaining flaps may be received and thereby held depressed, it will be apparent that the holding flaps are necessary to permit the use of the carton in packaging such cans.

2

For a better understanding of the invention, reference may be made to the accompanying drawings, in which:

Fig. 1 is a view in side elevation showing a form of the new carton for holding three cans;

Fig. 2 is a plan view of the filled carton shown in Fig. 1;

Fig. 3 is a fragmentary plan view on an enlarged scale of one end of the carton with the cans in place and parts of the carton removed;

Figs. 4, 5, and 6 are sectional views on the lines 4—4, 5—5, and 6—6, respectively, of Fig. 3;

Fig. 7 is a plan view of the blank from which the carton is formed; and

Fig. 8 is a plan view of the blank after certain folding operations have been performed thereon.

The new carton illustrated is for use in packaging flat top cans and it comprises a sleeve 10 of a suitable paperboard stock, which is formed from a blank 11 made up of a pair of like side wall panels 12, 12, a top connecting wall panel 13, and a connecting bottom wall panel 14, the top and bottom wall panels also being alike. At one end, the blank is provided with a glue flap 15 and, in the construction shown, the glue flap is attached to the outer edge of the bottom end wall panel 14. The several sections making up the blank are separated by creased lines 16, on which the blank can be easily folded.

At least one of the end walls of the blank is provided with a retaining flap 17 adjacent each end thereof and, in the carton shown, each end wall is provided with a retaining flap near each end. The flaps are preferably formed by being severed from the stock along three sides with the root of each flap defined by a creased line 17a. The root of each flap lies outwardly from the flap toward the edge of the blank, so that each flap projects from its root toward the median line of the blank. The side edges of each flap diverge from the ends of the root, so that the free end of each flap is enlarged and is wider than the portion of the flap adjacent the root. Preferably, each flap has creased lines 18 crossing the flap from the ends of its root and lying at right angles to the creased line 17a.

At each end of the top and bottom walls, the blank is provided with an outwardly extending holding flap 19, which is of generally semi-circular form and has a recess 20 extending inwardly from its outer end, the width of the recess being less than the maximum width of the retaining flaps. The root of each flap 19, along which it is connected to the remainder of the blank, is creased as indicated at 21.

In completing the carton from the blank, the holding flaps are successively turned inwardly over the rest of the blank on their creased lines 21 and, as each holding flap is moved down toward the face of the blank to overlie the adjacent retaining flap, the end portions of the retaining flap beyond the creased lines 18 are bent upwardly, so that these end portions pass through the recess 20 in the holding flap. The end portions of the retaining flap are then released, so that they spring back to overlie the holding flap, whereupon the tendency of the holding flap to return to its original position acts to pull the retaining flap interlocked therewith out of the plane of the blank to a slight extent. Glue is now applied to the surface of glue flap 15 and the blank is folded on the creased lines 16 to cause it to assume a rectangular form with the glue flap engaging the inner surface of side panel 12 at the remote end of the blank. Upon setting of the glue, the formation of the carton from the blank is completed and the carton has the form of a sleeve, which is rectangular in section, with the holding flaps 19 extending into the sleeve and holding the retaining flaps with their free ends inward from the wall of the carton, to which the retaining flaps are attached.

The transverse dimensions of the blank shown are such that the sleeve made therefrom holds a row of flat top cans lying side by side with their axes parallel, the sleeve fitting the cans snugly. The length of the sleeve is approximately equal to the maximum diameter of the cans multiplied by the number of cans less one, so that each end can in the row projects out of the sleeve for about half the diameter of a can. The carton illustrated is suitable for holding three cans and the central can 22 lies wholly within the sleeve, while the end cans 23 project outwardly from the sleeve at its ends.

The cans to be packaged in the carton are of the type having a chime formed by a crimped circumferential bead 24 at each end and both the top 25 and the bottom of the can are slightly domed, as shown in Figs. 4 and 6. The inner surface 24a of each bead flares slightly.

In loading the cans, the first can is inserted into the sleeve from either end and, as the can is moved inwardly, its bead bends outwardly

and passes by the interlocked retaining and holding flaps at the end of the sleeve, through which the can is introduced. The other two cans are then inserted into the sleeve from opposite ends and, when the end cans 23 in the row engage the central can 22, the beads on the end cans have passed the ends of the adjacent interlocked retaining and holding flaps. As the beads on a can pass the ends of the interlocked flaps, the flaps spring inwardly, so that the ends of the retaining flaps lie in position to engage the inner surfaces of the beads. Even though the inner surface 24a of each bead flares slightly, the tendency of each holding flap to return to its original position pulls its interlocked retaining flap inwardly into the sleeve so strongly, that the free end of the retaining flap engages the inner surface of the bead of the adjacent can sufficiently firmly to prevent accidental removal of the can from the sleeve.

When an end can is to be removed from the carton, the retaining flap engaging the bead at one end of the can may be pushed outwardly by a flat tool, inserted between the end of the can and the flap, after which the can may be swung outwardly. Instead, the can may be pulled forcibly out of the sleeve with resultant destruction of the flaps. In a filled carton of the type described, the cans lie side by side in close contact, so that there is little play between the beads on the ends cans and the ends of the retaining flaps. The cans are, accordingly, held firmly in place and there is no chance of accidental loss of a can from the carton.

In the foregoing, I have described the invention as embodied in a carton, but it is to be understood that the blank, from which the new carton is formed, is an article of commerce, since some users prefer to complete the carton and load it in a single operation. For this purpose, the blank is laid flat, the flaps are interlocked, as described, and a row of cans is laid upon one of the side wall panels. The other panels of the blank are then folded along the creased lines to wrap the blank around the cans, the carton being completed by affixing the flap 15 to the remote side walls by glue applied to the surface of the flap.

While I prefer to retain the cans in place within the carton by retaining flaps, which project from their roots toward the median plane of the carton sleeve and are held in effective position by reversely folded holding flaps, it is to be understood that it is advantageous to provide interlocking flaps, of which the reversely folded flaps engage the can beads to hold the cans in place. The interlocking of the flaps insures that the flaps, which tend to spring back in opposite directions, will both stay in the desired position during the loading of the carton, whereas, if only the reversely folded flaps were employed, these flaps might spring outwardly in such position as to interfere with the loading of the carton or the completion and loading of the carton in the same operation.

I claim:

1. A carton for holding a row of cans, which comprises a sleeve open at its ends and made up of a pair of side walls, a connecting top wall, and a connecting bottom wall, a retaining flap attached to at least one connecting wall near one end thereof, the flap being integral at its root with said wall and extending inward from its root toward the center of said wall, a holding flap attached to the same wall as the retaining flap

outwardly from the root of the retaining flap, the holding flap being integral at its root with said wall and being folded along the line of its root through approximately 180° to extend into the sleeve toward the center of the top wall, and cooperating interlocking means on the flaps connecting them together, the interlocking portion of said holding flap holding the retaining flap flexed out of the plane of said wall with its free end inwardly of the inner surface of said wall.

2. A carton as defined in claim 1 in which the holding flap has a recess extending inwardly from the free end thereof through which the retaining flap extends.

3. A carton as defined in claim 2 in which the cooperating interlocking means of the holding flap are portions thereof which bound at least a portion of the sides of the recess.

4. A carton as defined in claim 1 in which both the top and the bottom connecting walls are provided with like retaining and holding flaps.

5. A carton as defined in claim 1 in which the wall is provided near both ends with like retaining and holding flaps.

6. A carton for holding a row of cans which comprises a sleeve open at its ends and made up of a pair of side walls, a connecting top wall and a connecting bottom wall, a retaining flap attached to at least one connecting wall near one end thereof, the flap being integral at its root

with said wall and extending inwardly from its root towards the center of said wall, and a holding flap integral at its root with one of the walls of the sleeve and having a portion bent at least substantially 90° from the wall with which it is integral and extending between the retaining flap and the plane of the wall to which the retaining flap is attached and holding the retaining flap flexed out of the plane of said wall with its free end within the sleeve in position to engage the chime of a can.

7. A carton as defined in claim 6 in which the holding flap is reversibly folded, has a recess through which the retaining flap extends, and the portion of the holding flap which extends between the retaining flap and the wall is a portion thereof which bounds at least a portion of one side of the recess.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,885,855	Fuller	Nov. 22, 1932
1,997,816	Efty	Apr. 16, 1935
2,155,530	Crook	Apr. 25, 1939
2,398,797	Meyer et al.	Apr. 23, 1946
2,483,533	Dubiner	Oct. 4, 1949
2,523,985	Foster	Sept. 26, 1950
2,554,190	Hennessey	May 22, 1951
2,571,833	Chidsey, Jr.	Oct. 16, 1951