Feb. 7, 1967 F. W. LOCKE 3,302,853

CONTAINER CLOSURES

Filed June 21, 1965

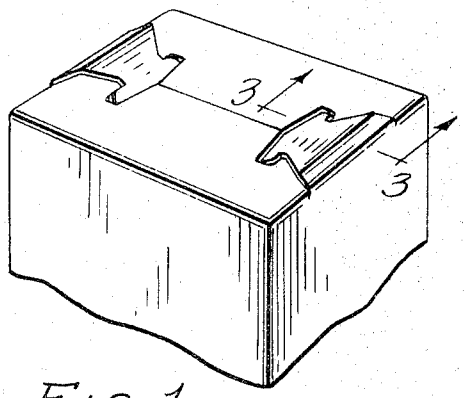


FIG. 1

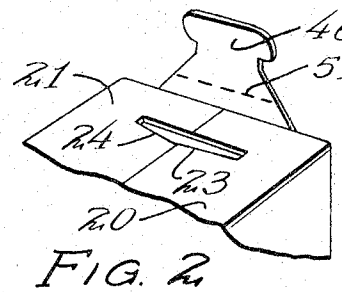


FIG. 2

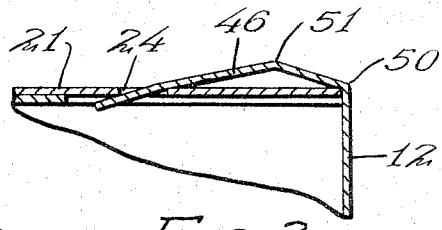


FIG. 3

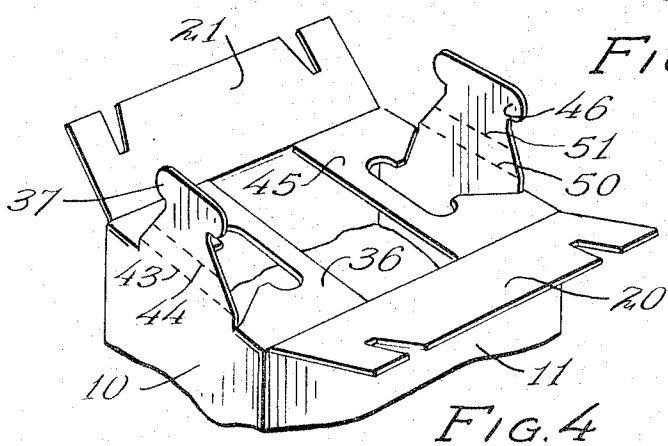


FIG. 4

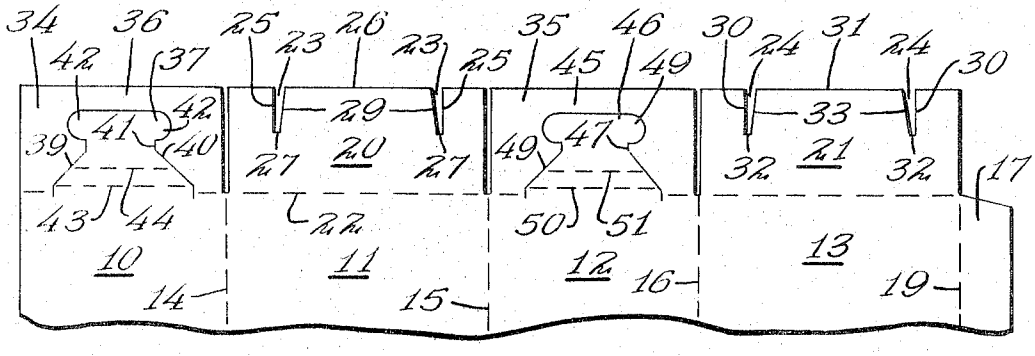


FIG. 5

INVENTOR

FRANK W. LOCKE

BY Robert M. Dunning

ATTORNEY

United States Patent Office

3,302,853

Patented Feb. 7, 1967

3,302,853

CONTAINER CLOSURES

Frank W. Locke, Minneapolis, Minn., assignor to Waldorf Paper Products Company, St. Paul, Minn., a corporation of Minnesota

Filed June 21, 1965, Ser. No. 465,349
4 Claims. (Cl. 229—39)

This invention relates to an improvement in container closures and deals particularly with a locking assembly for the top of a regular slotted container.

Containers, particularly corrugated containers, are used to package a wide variety of items ranging from washing machines to nuts and bolts. When a container is used for the purpose of packaging a relatively large and light item such as, for example, a toy truck, it is usually unnecessary to staple, glue, or otherwise seal the container. As a matter of fact, in the packaging of many toys, it is undesirable to staple, glue or otherwise seal the container since the purchaser, generally one other than the user of the toy, must break the seal to view the toy. A child who receives a toy in a container which has been previously opened oftentimes becomes disturbed in receiving a toy which has been "broken."

Many manufacturers produce their wares in such size and weight variations that expensive automated packaging machinery is not economically feasible. Yet the profit margin many small manufacturers are subjected to by their larger competitors is small and a package which affords ease of packaging and no necessity for packaging machinery is very advantageous.

Many closures presently available have locking features which do not require packaging machinery and which allow the container to be opened for review of the contents without destroying the container. However, some of these locking features require more stock of corrugated board or are designed for closing a container which is not filled, for example, a locking assembly which must be pushed inwardly into the container to engage various flaps which "pop" back in locked position ready for the container to receive contents.

Other closures, although they require no packaging machinery, do not maintain the container in "square" since the flaps generally used as container forming members are used as locking tabs. Therefore, the container is weakened if container forming members are not used since is has a susceptibility to collapse from lack of proper support from within.

It is an object of my invention to provide a container which may be easily opened to review contents, which may be reclosed without evidence that the container was ever, in fact, opened, and which container once closed and locked is adequately locked for proper product protection.

It is an object of my invention to provide a container closure which may be closed when the container is filled. It is also an object of my invention to use a locking means which does not take from the protection afforded by the container forming members which tend to keep the container in "square" and prevent it from collapsing.

It is a further object of my invention to provide a container which is efficiently assembled, filled, closed, and locked without the aid of costly packaging machinery. Another object of my invention is to provide a locking closure which does not use more corrugated stock than is commonly used in the manufacture of a regular slotted container.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specification and claims.

In the drawings, forming a part of the specification,

FIGURE 1 is a diagrammatic view of a portion of the container showing the container in partially closed position with locking tabs partially in place.

FIGURE 2 is a diagrammatic view of a portion of the container showing a locking tab prior to being placed in locked position. Side flap apertures are shown in opposed relation ready to receive the locking tab.

FIGURE 3 is a cross sectional partial view of the locking tab arrangement in locked position. The view is taken along section line 3—3 of FIGURE 1.

FIGURE 4 is a diagrammatic view of a portion of the container showing locking tabs, side flaps with side flap apertures and container forming members in open position.

FIGURE 5 is a diagrammatic view of the blank from which the container is formed.

The drawings disclose a container having a single end closure, the other end of the container not being illustrated. In actual practice, the other end of the container could be free of closure flaps, if the container were to be of a cover type, or could be provided with closure flaps of conventional form of the type known as a regular slotted container or a full overlapped style container. As these closures are well known in the art, and as the opposite end closure has nothing to do with the present invention, only one container end has been shown.

As shown in FIGURE 5 of the drawings, the container includes an end wall 10, a side wall 11, a second end wall 12, and a second side wall 13, these walls being connected along parallel fold lines 14, 15, and 16, respectively. A glue flap or stitch flap 17 is hingedly connected to an end panel of the series, such as side wall 13 along fold line 19. Alternatively, the stitch flap 17 may be eliminated in the manufacturer's joint and the container may be taped closed.

The side walls 11 and 13 are provided with side flaps 20 and 21, respectively, connected to an edge of the side walls along a fold line 22. The side flaps 20 and 21 are preferably each of an area substantially equal to one-half the area of the closure so that these flaps, when folded into a common plane, are in edge abutting and coplanar relation. Two substantially rectangular side flap notches 23 are formed in the end edge of the side flap 20 and two similar rectangular side flap notches 24 are formed in the end edge of the closure of the side flap 21. The side flap notches 23 are defined by cut lines 25 which extend into the flaps at substantially right angular relation to the end edge 26 of the side flap 20 by cut lines 27 substantially perpendicular to cut line 25 and a substantial distance from end edge 26 and by cut line 29 substantially parallel to cut line 25 and perpendicular to end edge 26 and communicating with cut line 27. The side flap notches 24 in side flap 21 are similarly defined by right angularly extending cut line 30 from end edge 31. Cut line 32, a substantial distance from end edge 31 and substantially perpendicular to cut line 30, connects to cut line 33 which is substantially perpendicular to and connecting with end edge 31 and substantially parallel to cut line 30.

Side flap notches 23 and 24 are spaced at equal distances from the side edges of the side flaps 20 and 21 so that when the side flaps 20 and 21 are folded into coplanar relation relation and edge abutting relation, the opposed side flap notches 23 and 24 combine to form substantially rectangular apertures of a predetermined width.

End flaps 34 and 35 are hingedly connected to the edges of the end walls 10 and 12, respectively, along the fold line 22. Container forming member 36 is formed from end flap 34. Container forming member 36 is

hingedly connected to end wall **10** along fold line **22** and includes side edges parallel to the side walls and an end edge substantially equal in width to the end wall. Locking tab **37** is formed from end **34** and is connected to end wall **10**. The locking tab **37** is defined by cut lines **39** and **40**, respectively, which converge from fold line **22**, a substantial distance inwardly from the side edges of end wall **10**, toward a narrow or neck portion **41**. Obviously, the cut lines **39** and **40** need not be straight as shown but may be curved. A locking tongue **42** is substantially wider than the neck portion and the width is substantially equal to the combined widths of side flap notches **23** and **24**. The locking tab **37** is foldable inwardly along parallel transverse fold lines **43** and **44** which are parallel to fold line **22**.

In a similar manner, end flap **35** consists of container forming member **45** hingedly connected to end wall **12** along fold line **22** and locking tab **46** connected to end wall **12**. Locking tab **46** consists of cut lines converging from fold line **22** a substantial distance inwardly from fold lines **15** and **16** toward a neck portion **47**. Locking tongue **49** is connected to neck portion **47** and is of a width substantially equal to the combined width of side flap notches **23** and **24**. The locking tab **46** is foldable inwardly along parallel transverse fold lines **50** and **51** which are parallel to fold line **22**.

In closing the container end, container forming members **36** and **45** are folded inwardly into coplanar relation as shown in FIGURE 4. Next, side flaps **20** and **21** are folded inwardly into coplanar and edge abutting relation as shown in FIGURE 2. Locking tabs **37** and **46** are then folded inwardly along fold lines **43**, **44**, **50**, and **51**, respectively, as shown in FIGURE 1 and also in cross section in FIGURE 3. Locking tongues **42** and **49** are inserted in side flap notches **23** and **24**, thereby engaging the locking tonegue in the notches and securing the surface portions of the notches against the edge of the locking tongues **42** and **49**.

To disassemble the locking tab and thereby open the container, locking tabs **37** and **46** are simply folded inwardly more abruptly along fold lines **43**, **44**, **50**, and **51**, respectively, and forced inwardly into the side flap notches **23** and **24** and then eased from these side flap notches. The side flaps **20** and **21** and container forming members **36** and **45** are folded upwardly and access may be obtained to the container. All the flaps may then be folded back into the plane of the walls to which they are hinged and the container may be flattened and stored for reuse.

In accordance with the patent statutes, I have described the principles of construction and operation of my improvement in container closure; while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A closure for a container having opposed side and end walls hingedly connected in tubular relation, the closure including:

end flaps hingedly connected to the end walls,

container forming members formed from each end flap hingedly connected to the end walls and including side edges parallel to the side walls, and an end edge substantially equal in width to the end wall, the container forming members folded into coplanar and edge abutting relation,

side flaps hingedly connected to the side walls including notches in the end edges of the side flaps in opposed relation to form apertures of a predetermined width through the side flaps, folded inwardly into coplanar and edge abutting relation and into face contact with said container forming members, and

locking tabs formed from each end flap and connected to the end walls including

a neck portion being narrowed in width from the juncture of the locking tab and the end wall, and

a locking tongue connected along the neck portion being of a width equal to the predetermined width of the side flap notches folded downwardly and inserted so that when the locking tongues extend through the side flap notches, the locking tongues engage surface portions of the side flap notches thereby locking the container.

2. A closure for container having opposed side and end walls hingedly connected in tubular relation, the closure including:

end flaps hingedly connected to the end walls,

container forming members formed from each end flap hingedly connected to the end walls and including side edges parallel to the side walls, and an end edge substantially equal in width to the end wall, the container forming members folded into coplanar and edge abutting relation,

side flaps hingedly connected to the side walls including notches in the end edges of the side flaps in opposed relation to form apertures of a predetermined width through the side flaps, folded inwardly into coplanar and edge abutting relation and into face contact with said container forming members, and

locking tabs formed from each end flap and connected to the end walls including

closely spaced parallel transverse fold lines parallel to the end wall top edge and a substantial distance therefrom,

a neck portion being narrowed in width from the juncture of the locking tab and the end wall, and

a locking tongue connected along the neck portion being of a width equal to the predetermined width of the side flap notches folded downwardly along the transverse fold lines and inserted so that when the locking tongues extend through the side flap notches, the locking tongues engage surface portions of the side flap notches thereby locking the container.

3. A closure for a container having opposed side and end walls hingedly connected in tubular relation, the closure including:

end flaps hingedly connected to the end walls,

container forming members formed from each end flap hingedly connected to the end walls and including side edges parallel to the side walls, and an end edge substantially equal in width to the end wall, the container forming members folded into coplanar and edge abutting relation,

side flaps hingedly connected to the side walls including notches in the end edges of the side flaps in opposed relation to form apertures of a predetermined width through the side flaps, folded inwardly into coplanar and edge abutting relation and into face contact with said container forming members, and

locking tabs formed from each end flap and hingedly connected to the end walls including

a transverse fold line parallel to the end wall top edge and a substantial distance therefrom,

a neck portion being narrowed in width from the juncture of the locking tab and the end wall, and

a locking tongue connected along the neck portion being of a width equal to the predetermined width of the side flap notches folded downwardly along the transverse fold line and inserted so that when the locking tongues extend through the side flap notches, the locking tonques engage surface portions of the side flap notches thereby locking the container.

4. The structure of claim 1 and in which all of said flaps are of substantially equal length.

References Cited by the Examiner

UNITED STATES PATENTS

1,546,601	7/1925	Morris	229—39
2,349,707	5/1944	D'Esposito	229—39
2,400,443	5/1946	Stopper	229—39
2,768,778	10/1956	Ferguson et al.	229—39 XR
3,201,026	8/1965	Travis et al.	229—39

JOSEPH R. LECLAIR, *Primary Examiner.*

DAVIS T. MOORHEAD, *Examiner.*