March 5, 1957 R. E. CONNELLY 2,783,934

CLOSURE FOR CONTAINERS

Filed Aug. 7, 1956

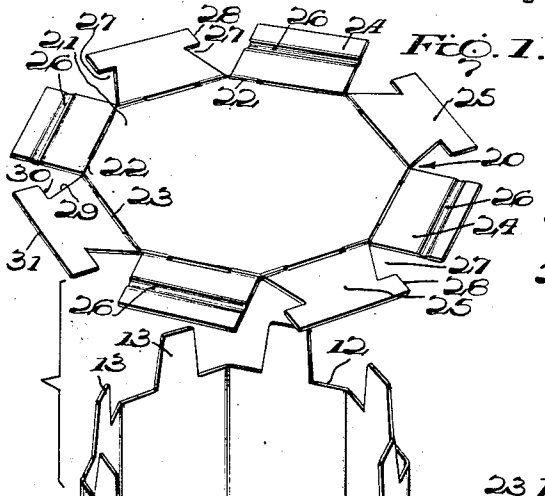


Fig. 1.

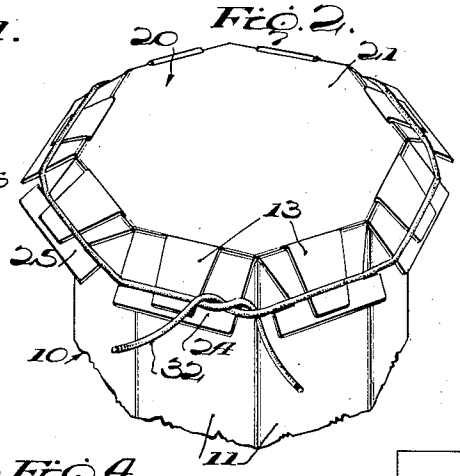
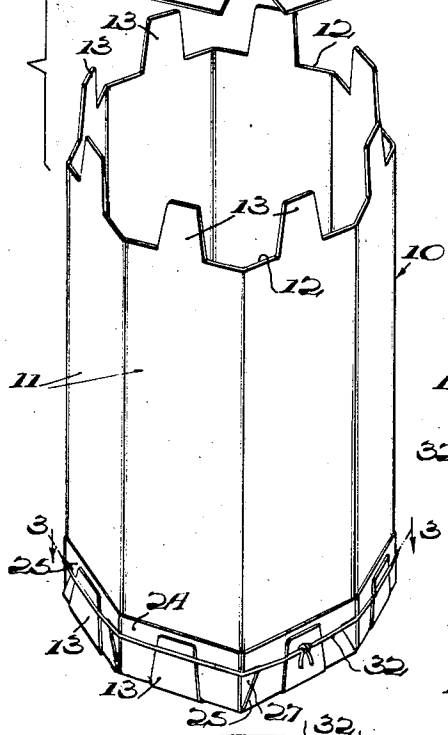


Fig. 2.



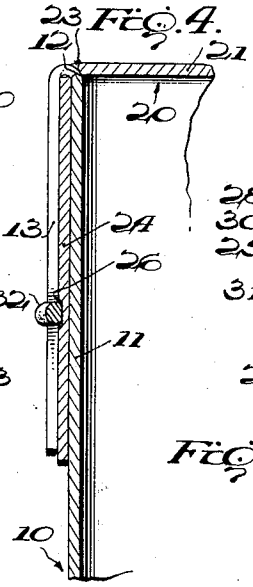


Fig. 4.

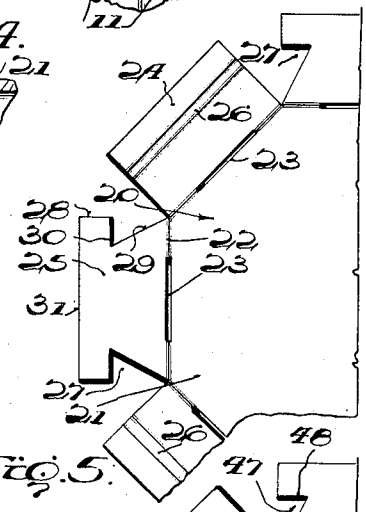


Fig. 5.

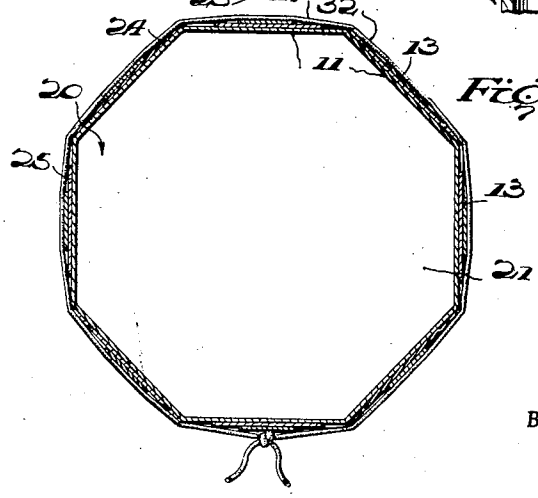


Fig. 3.

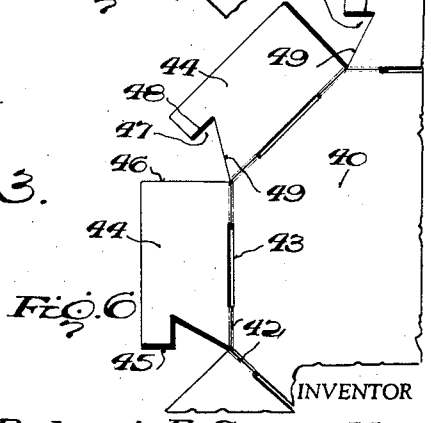


Fig. 6.

INVENTOR

Robert E. Connelly.

BY W. J. Eccleston

ATTORNEY

United States Patent Office 2,783,934 Patented Mar. 5, 1957

2,783,934

CLOSURE FOR CONTAINERS

Robert E. Connelly, Wynnewood, Pa., assignor to the United States of America as represented by the Secretary of the Army

Application August 7, 1956, Serial No. 602,679

8 Claims. (Cl. 229—46)

The invention relates to closures for containers and more particularly to assemblies wherein in the closure includes a series of closure flaps which secure the closure to the container and which are themselves secured in an operative position by an elongated flexible tie member.

Such container closures are well known but where, as in the patent to Jamieson, No. 2,718,996, the container is of substantial size, real difficulty has been encountered in applying the flexible tie to the flaps. The closure flaps are integral with the closure body and the scored hinge line for each flap provides a resilient hinge which resiliently resists efforts to maintain the flap in the operative position at right angles to the closure body. Jamieson has attempted to solve this problem by providing each side edge of each closure flap with a tie-receiving notch. However, this provides an unsatisfactory or only partial solution as the tie must be laboriously seated in each notch while tension is maintained on the tie. At best it is a slow operation for one person and two persons are required if any speed of operation is to be achieved. Other solutions, such as punching holes through the flaps and threading the tie therethrough are obviously slower and more costly.

With the foregoing in view, it is an object of the invention to provide an improved container closure of the class described.

A further object is to provide such an improved closure wherein at least some of the closure flaps are provided with means which are formed to seat and maintain the tie member therein automatically as the tie is initially applied to the closure.

Other objects and advantages reside in the particular structure of the device, combinations and sub-combinations of the elements thereof with each other and/or with a container, all of which will be readily apparent to those skilled in the art upon reference to the attached drawing in connection with the following specification wherein the invention is shown, described and claimed.

In the drawing:

Figure 1 is an exploded perspective view of a container and a closure according to one form of the invention;

Figure 2 is a fragmentary perspective view of the upper end of a container showing a closure according to Figure 1 partially applied thereto;

Figure 3 is a horizontal sectional view taken substantially on the plane of the line 3—3 of Figure 1;

Figure 4 is an enlarged fragmentary vertical sectional view through the closure and container showing the closure secured in its operative or closed position;

Figure 5 is a fragmentary plan view of the closure apart from the container; and

Figure 6 is a view like Figure 5 but showing a modification of the invention.

Referring specifically to the drawing, wherein like reference characters designate like parts in all views,

10 designates any generally cylindrical container which may be formed of a plurality of panels 11 each having an upper edge 12 from which arises a closure securing tab 13. The bottom of the container may be similarly formed. Identical top and bottom closures 20 combine with the container to comprise the essential feature of the invention.

Each closure 20 comprises a body portion 21 which is sized and shaped to fit the open top or bottom of the container 10. A series of closure flaps 24 and 25 normally extend radially of the body portion 21 and are hinged thereto along the fold lines 22. Each fold line 22 is formed with a slot 23 for the free passage therethrough of one of the tabs 13. In the form of invention of Figures 1–5, an even number of closure flaps 24, 25 are provided with the flaps 24 and 25 alternating.

Each flap 24 is generally rectangular and may be formed with a score line 26 which is outwardly spaced from the fold line 22 but parallel thereto. Each flap 25 is likewise generally rectangular but has a notch 27 formed in each side edge 28 thereof. Each notch 27 is defined in part by an inner edge 29 which extends diagonally inwardly of the side edge 28 of its flap from the region of the hinged edge or fold line 22. Each notch 27 is completed by an outer edge 30 which intersects the inner edge 29 at an acute angle. Preferably, the outer edges 30 of the notches 27 are parallel to the free edges 31 of the flaps 25. Likewise, when the flaps 24, 25 are folded into abutting relation to their respective container panels 11, the score lines 26 of the flaps 24 are substantially aligned with the apices of the notches 27.

To secure the closure 20 to the container 10, the tabs 13 of the latter are passed through the slots 23 of the former. Thereafter, tabs 13 together with flaps 24, 25 are bent along their respective fold lines into flat abutment with their respective panels 11. However, as the material forming the container and closure, usually fiberboard or corrugated board, is somewhat resilient, the tabs and flaps tend to spring out from the panels 11 as shown in Figure 2. A flexible tie 32 is utilized to secure to tabs 13 and flaps 24, 25 in the closed position in a well known manner. In the absence of my invention, when the tie comprises a metal band, or a cord as shown, one person has extreme difficulty in positioning and maintaining the tie positioned properly with respect to the tabs 13 and flaps. This is particularly true of the larger sized containers.

However, the particular notches 27 of the invention serve as guides to seat the tie 32 in the apices of the notches and also in the score 26 when the latter is present. This is because the inner edges 29 of notches 27 extend inwardly of the flaps from the fold lines 22 and provide inclined planes which lead the tie 32 into the apices of the notches 27. Likewise the acute angles formed by the outer edges 30 prevent the tie from dropping out of the notches. Thus, the particular notches 27 not only expedite the securing of the closures in place but also assure that the tie is properly located across the flaps 24, 25 and along the score line 26 of the former.

In the form of invention of Figure 6, any number of identical closure flaps 44 may be provided on the closure 40. Here again the flaps 44 are generally rectangular and are hinged to the closure body along fold lines 42 which are provided with slots 43 for the tabs 13. However, only one side edge 45 of each flap 44 is formed with a notch 47 and the other side edge 46 is un-notched. The notches 47 are the same as the notches 27 and have inner edges 49 arising in the region of the fold lines 42 intersected at acute angles by the outer

notch edges 48. In the form illustrated, each notch 47 faces an un-notched edge 46 of an adjacent flap 44. The operation of this form of the invention is the same as that of Figures 1–5.

It is apparent from the foregoing that both forms of the invention effectively accomplish the objects of the invention and do not require any modification of the container 10.

Moreover, while there has been shown and described what are now considered to be the preferred embodiments of the invention, it should be understood that the same is susceptible of other forms and expressions. Consequently, the invention is not to be considered as limited to the precise structures shown and described hereinabove except as hereinafter claimed.

I claim:

1. In a container closure of the type wherein a closure body is surrounded by a circumferential series of closure flaps hinged thereto, each flap having a hinged edge, a free edge and opposite side edges, there being a flexible tie overlying the closure flaps and securing them against the container; the improvement comprising a notch formed in at least some of said side edges, each notch being defined in part by an inner edge extending diagonally inwardly of a side edge of its flap from the region of said hinged edge, and said inner edge of each notch comprising an inclined guide for guiding said tie into each notch.

2. A closure according to claim 1, wherein each notch is completed by an outer edge which intersects said inner edge at an acute angle.

3. A closure according to claim 2, wherein said outer edge of each notch is substantially parallel to the free edge of its flap.

4. A closure according to claim 1, wherein there is an equal number of flaps, alternate flaps having un-notched side edges, there being a notch formed in at least one side edge of each of the remaining flaps.

5. A closure according to claim 1, wherein there is an equal number of flaps, alternate flaps having un-notched side edges, there being a notch formed in each side edge of each of the remaining flaps.

6. A closure according to claim 5, wherein said un-notched alternate flaps are formed with transverse score lines which are located to intersect said notches on the remaining flaps.

7. In a container closure of the type wherein a closure body is surrounded by a circumferential series of closure flaps hinged thereto, each flap having a hinged edge, a free edge and opposite side edges, there being a flexible tie overlying the closure flaps and securing them against the container; the improvement comprising a notch formed in one side edge of each flap, the other side edge of each flap being un-notched, each notch being defined in part by an inner edge extending diagonally inwardly of a side edge of its flap from the region of said hinged edge, and said inner edge of each notch comprising an inclined guide for guiding said tie into each notch.

8. A closure according to claim 7, wherein each notched side edge faces an un-notched side edge of an adjacent flap.

References Cited in the file of this patent

UNITED STATES PATENTS

2,718,996 Jamieson ---------- Sept. 27, 1955