Dec. 20, 1955 J. O. TILLY 2,727,676

CONTAINER CLOSURE STRUCTURE

Filed Dec. 12, 1951

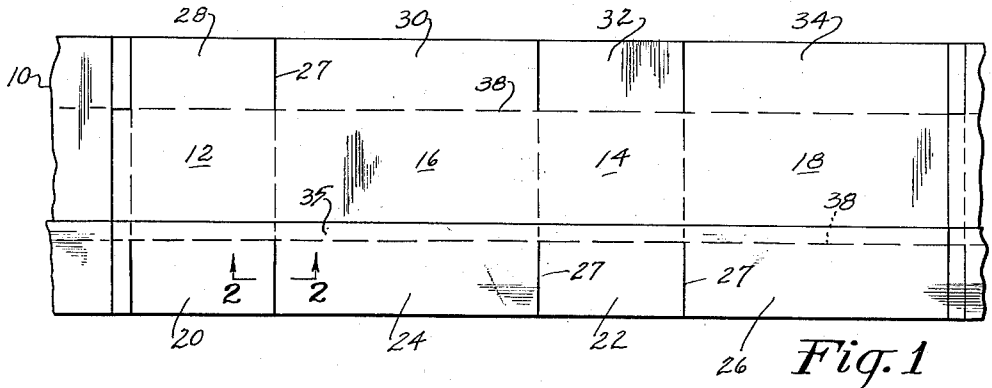


Fig. 1

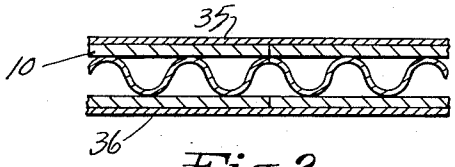


Fig. 2

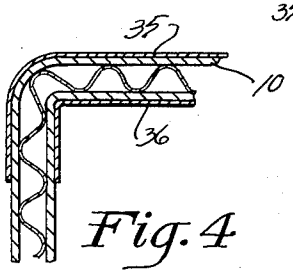


Fig. 4

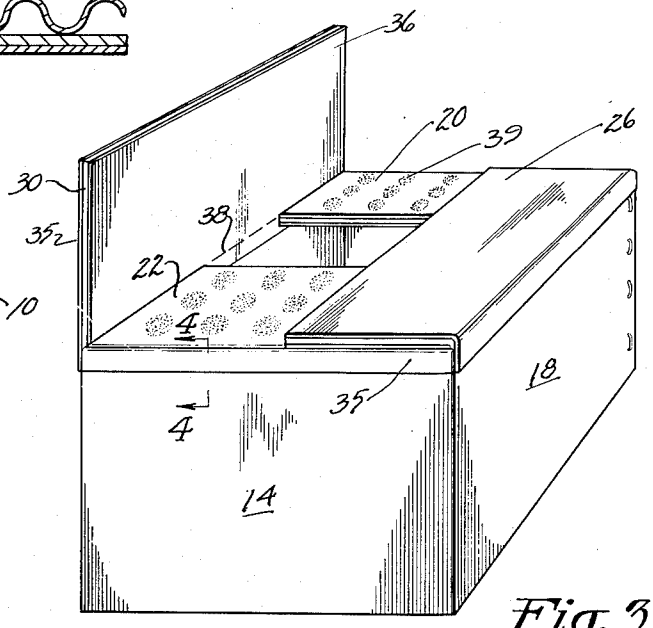


Fig. 3

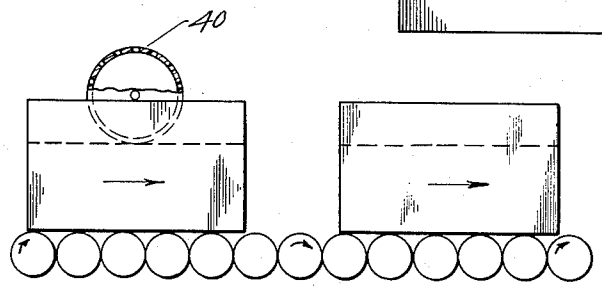


Fig. 5

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CONTAINER CLOSURE STRUCTURE

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2 Claims. (Cl. 229—37)

This invention relates to a container and the method of forming the same. In particular the invention is directed to a new method of constructing a container and the sealing of the closure flaps.

It is desirable to construct containers, and especially containers formed of corrugated paper board, so that the closure flaps can be opened readily without destroying the same. Ordinarily the flaps are sealed by adhesive covering at least 50 per cent of the surface area between the flaps, or by adhesive tape overlying the joints between the flaps, or by staples fastening together the flaps. In each of the above instances it is difficult to open the container without destroying the flaps. In addition the box usually fails during use by breaking along the score line between the flaps and the side walls of the box.

The objects of this invention are to produce a container which can be easily opened without destroying the flaps, which has reinforced edges between the flaps and side walls, and which can be handled by ordinary box closing machinery.

In general the invention consists of a layer of paper adhesively united to both sides of the flaps and extending across the score lines partly down the side walls of the box. This layer of paper has a sized or glazed surface which is exposed, and to which are applied spaced areas of adhesive. It has been discovered that if only 22.4 per cent of the surface area of the paper is covered by adhesive in the form of spaced dots, the flaps are sealed well enough to undergo all handling during shipping without coming open. Moreover the edges of the box are reinforced by this additional layer of paper so that the possibility of failure of the box on the score line between the flaps and side walls is reduced. The box can be opened simply by pulling on the flaps, the dots of adhesive breaking and permitting the flaps to be separated without injury to the same.

This application is an improvement invention over that disclosed in my co-pending application S. N. 237,469, filed July 18, 1951, for Sealing Insert for Containers. The types of adhesives and their range of coverage of the closure flap areas as disclosed in said aforesaid application are similarly applicable to the improvement disclosed in this application.

The means by which the objects of the invention are obtained, are described more fully in connection with the accompanying drawings, in which:

Figure 1 is a plan view of a strip of corrugated cardboard from which box blanks are cut;

Figure 2 is a cross-sectional view on the line 2—2 of Figure 1;

Figure 3 is a perspective view of a completed box;

Figure 4 is a cross-sectional view on the line 4—4 of Figure 2, and

Figure 5 is a diagrammatic view illustrating a part of the method of sealing the boxes.

In Figure 1, a strip **10** of corrugated paper board is shown after having been passed through the dies to cut

a box blank having end panels **12** and **14** and side panels **16** and **18**. A flap **20** is joined to end panel **12**, a similar flap **22** being joined to end panel **14**. Similarly closure flaps **24** and **26** are secured to side panels **16** and **18**. These flaps are separated by slits **27**. Likewise closure flaps **28**, **30**, **32** and **34** appear on the opposite edge of the side wall panels.

Prior to the passing of the blank **10** to the cutting dies, a layer of paper **35** is glued to one face of the board **10**, and a similar sheet **36** is placed on the opposite face. These sheets have a width to extend from the longitudinal edge of the blank slightly beyond the score lines or folding lines **38**. In Figure 1, the layers **35** and **36** are illustrated as extending along one longitudinal side only of blank **10**, but it is clear that similar sheets can be added to cover flaps **28**, **30**, **32** and **34**. Sheets **35** and **36** preferably are of relatively light weight and have an exposed sized or glazed surface. In practice a 30 pound machine glazed kraft paper has been found to be satisfactory, the unglazed face being adhesively united over substantially 100 per cent of its area to the surface of blank **10**, and the sized or glazed surface being exposed.

In Figure 3 the blank is shown folded into a box. Closure flaps **20** and **22** are in closed position, the glazed surface of the machine glazed paper being exposed. The edges of the box are reinforced by virtue of the paper extending over the score lines **38** and over a portion of the side panels of the container.

The box, after being filled with goods, may be run through conventional closure machinery. Paper strips **35** and **36** may be precoated with adhesive spots **39** prior to being applied to paper board **10**, or coated after being united to blank **10**, or as diagrammatically illustrated in Figure 5, flaps **20** and **22** can be coated with spots **39** of adhesive by means of a perforated adhesive applying cylinder **40**. The boxes then pass through the flap closing machinery. Because the adhesive is applied to a sized or glazed surface, only from about 22.4 to about 50 per cent of the surface of the flaps needs to have adhesive applied thereto. The sealing is adequate for all normal shipping purposes. When it is desired to open the container, the flaps can be pulled by hand and the spots of adhesive will fracture and separate, thus permitting the flaps to be opened without injury to the same. Inasmuch as the flaps are undamaged the boxes are available for reuse simply by applying more adhesive to the flaps, or if desired by resurfacing the flaps with an additional layer of the glazed or sized paper, such as disclosed in my co-pending application S. N. 237,469.

Although the invention has been illustrated as being applied to a so-called one piece container, the invention is applicable to the airplane flap type container, and any form of container employing adhesively united closure flaps.

Having now described the means by which the objects of the invention are obtained, I claim:

1. In a container having outer flaps closed down upon inner flaps, and having side walls joined to said flaps, respectively, liners adhesively united over substantially their entire surfaces to the upper surfaces of each of said inner flaps and to the lower surfaces of each of said outer flaps, said liners extending over the joints between said flaps and said side walls and being adhesively secured to said side walls, the surfaces of said liners facing each other being glazed, and numerous spaced areas of adhesive equally distributed in uniform patterns over substantially the entire glazed surfaces and uniting said liners to seal said flaps.

2. In a container as in claim 1, said liners further comprising machine glazed kraft paper.

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