Jan. 13, 1959 R. GUYER 2,868,432

CARTONS WITH TEAR OPENERS

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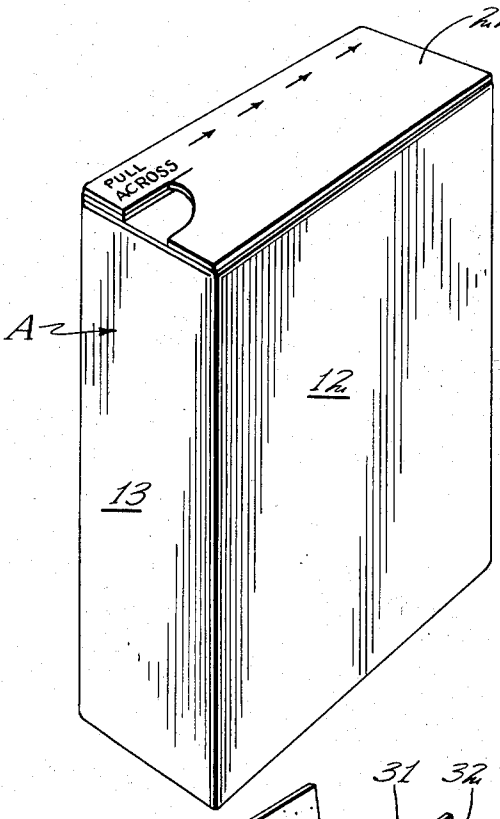

Fig. 1

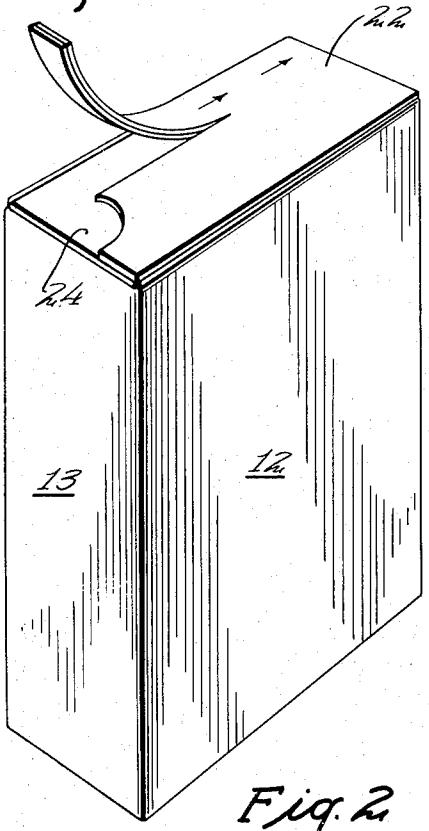

Fig. 2

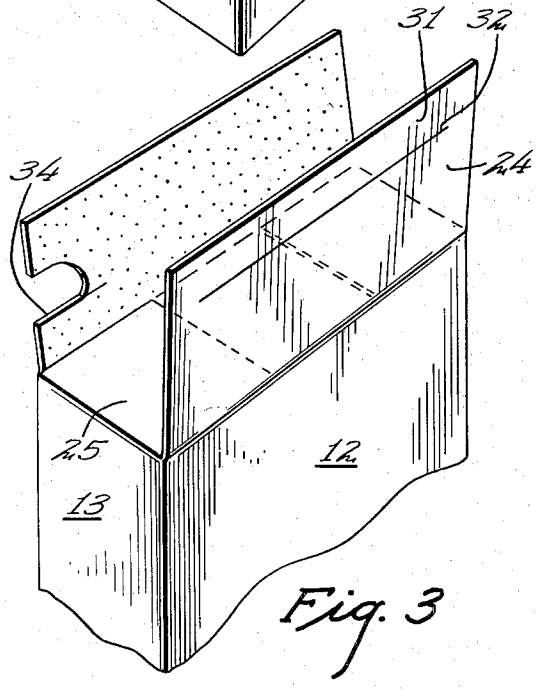

Fig. 3

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CARTONS WITH TEAR OPENERS

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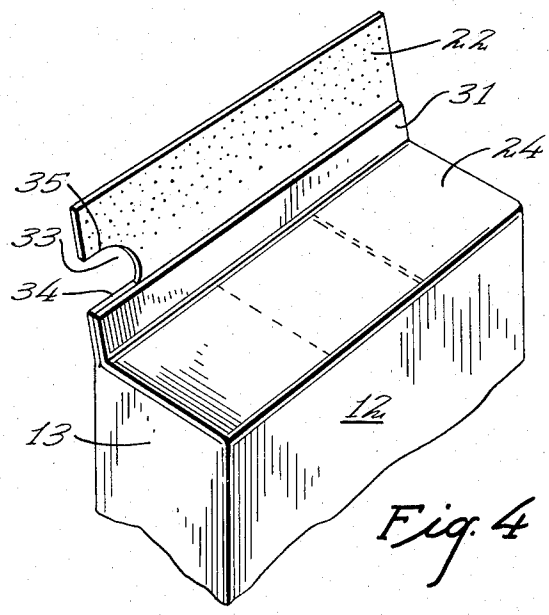

Fig. 4

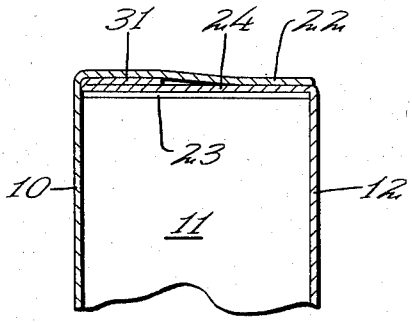

Fig. 5

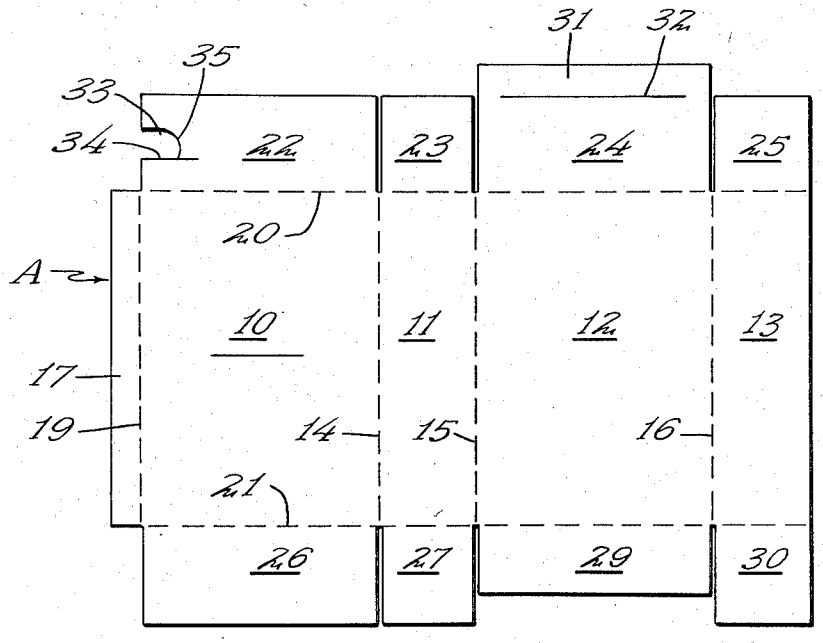

Fig. 6

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CARTONS WITH TEAR OPENERS

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6 Claims. (Cl. 229—51)

This invention relates to an improvement in cartons with tear openers and deals particularly with a simple and effective means for opening a tubular carton so that the contents may be removed.

Numerous devices have been provided for quick opening of cartons and the like. Many such cartons involved complicated structures which are difficult to produce and which must be sealed on special types of equipment. The present invention lies in the provision of a tubular carton which may be easily constructed and which requires no special apparatus during the filling and sealing operation.

A feature of the present invention lies in the provision of a glued end tubular carton having tubularly arranged side walls and closing flaps hingedly secured to the ends of these side walls. One of these closing flaps is substantially longer than the other and is longer than the width of the closed end carton. This extended portion of the glue flap is separated from the body portion of the flap by a weakened line of separation. In the closing operation of the carton, this longer flap is first folded while the opposite flap is in substantially vertical position. As a result, the extended end of the first folded flap bears against the opposite flap and is bent upwardly thereby to lie along side of the vertical flap. When the second or opposite flap is folded to over-lie the first, this extended end is folded down between the first folded flap and the last folded flap and is adhered thereto. This forms a flap portion of double thickness which may be grasped and pulled upwardly so as to tear the top of the carton open.

A feature of the present invention lies in the provision of a reversely folded reinforcing portion on the first folded wide flap of the carton and in providing a notch or recess in the last folded flap to permit the fingers to grasp the double thickness portion. By grasping the end of the double thickness portion of the uppermost flap and pulling the same upwardly, these portions of the flap may be torn away from the carton to permit the top to be opened.

A further feature of the present invention resides in the provision of a carton having a double thickness portion in the last closed flap, which is formed by adhering a folded portion of the first folded flap to the under surface of the last folded flap. By the specific arrangement disclosed, the double thickness flap portion can be formed without a special gluing operation and on regular gluing and sealing equipment.

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

In the drawings forming a part of my specification:

Figure 1 is a perspective view of a sealed carton showing the relationship of parts therein.

Figure 2 is a view similar to Figure 1 with a portion of the top closure of the carton removed.

Figure 3 is a perspective view of the carton after the

first pair of opposed flaps have been folded inwardly and prior to the folding of the last folded flaps.

Figure 4 is a view similar to Figure 3 but showing a later stage in the carton closing condition.

Figure 5 is a sectional view through the top closure showing the relationship of parts in the sealed closure.

Figure 6 is a diagrammatic view of the blank from which the carton is formed.

The carton when formed and sealed, appears as best indicated in Figure 1 of the drawings. However, in order to properly understand the construction of the carton, reference is made to the blank shown in Figure 6.

The carton is indicated in general by the letter A and it includes a panel **10**, and end panel **11**, a wall panel **12**, and an end panel **13** which are foldably connected along parallel fold lines **14**, **15** and **16**. A glue flap **17** is foldably connected to an end panel of the series, such as to the panel **10** by a fold line **19**.

The blank is divided by fold lines defining the top and bottom edges of the panels previously described, these fold lines being designated by the numerals **20** and **21**. The fold line **20** connects the panels **10**, **11**, **12** and **13** to closing flaps **22**, **23**, **24** and **25** respectively. The fold line **21** connects these same wall panels with bottom closing flaps **26**, **27**, **29** and **30**. This structure is a common practice insofar as the structure defined to this time is concerned.

The flap **24** is provided with an extended portion **31** which is foldably connected to the free end of the panel along a weakened line of separation **32** which is parallel to the fold line **20**. This weakened line of separation in the particular form of construction illustrated, comprises a cut line which extends the major portion of the length of the flap **24**. However, obviously this weakened line could be a score line such as a cut score, could be a perforated line or could be any other form of weakened line.

In the particular form of construction illustrated, the bottom flap **29** is shorter than the remaining flaps. The purpose of this arrangement is to permit the extended flap portion **31** of one carton to dove tail into the space provided by shortening the flap **29**.

A notch **33** is provided in an end edge of the flap **22**. In the particular arrangement illustrated, this notch **33** is formed by a cut line **34** which extends parallel to the fold line **20** and is spaced therefrom a distance substantially equal to the length of the extended portion **31**. The inner end of the straight cut line **34** is connected by a curved cut line **35** to the edge of the flap **22**.

In order to function most effectively, the grain of the paperboard, if such grain exists, is usually arranged to extend longitudinally of the carton blank. With this arrangement, the closure is torn longitudinally of the grain of the paper when the carton is opened.

In the formation of the carton, the blank shown in Figure 6 is first folded as for example along the fold lines **14** and **16** so that the glue flap **17** overlaps the panel **13** and is adhered thereto. The carton blank is then in flat glued tubular condition.

When it is desired to close the carton, usually the flaps at the lower end of the carton are first sealed. Normally, the opposed flaps **27** and **30** are first folded into right angular relation to the end walls of the carton and over-lying the end of the carton. The flaps **26** and **29** are then folded into overlapping relation and sealed to the first closed flaps **27** and **30**. When one end of the carton has been sealed, the carton is filled in any desired type of equipment.

In sealing the upper end of the carton, the flaps **23** and **25** are first folded down to over-lie the upper end of the carton, these flaps assuming the position indicated

in Figure 3 of the drawings. The flap 24 is next folded down to over-lie the first folded flaps 23 and 25. In view of the fact that the flap 24 is approximately the width of the top of the carton and the extended portion 31 would normally extend beyond the top of the carton, this extended portion 31 normally engages against the inner surface of the flap 22 as the flap 24 is folded into closed position. Usually, no adhesive is applied between the flap 24 and earlier folded flaps 23 and 25, although if a tighter seal is required, the flap 24 can be glued to the shorter flaps. When flap 24 has been folded into closed position, the extended portion 31 extends upwardly in surface contact with the flap 22 as is best indicated in Figure 4 of the drawings. When in this position, the end of the extended portion 31 is substantially flush with the edge 34 of the notch 33.

The under surface of the flap 22 has been previously coated with a suitable adhesive. Accordingly, when this flap 22 is folded down, the end of the flap adheres to the upper surface of the flap 24. The other edge of the flap 22 seals in surface contact with the extended portion 31. Accordingly, when the package is sealed, the extended portion 31 forms a reinforcement for a portion of the flap 22 and this reinforced portion is of double thickness.

When it is desired to open the sealed carton shown in Figure 1, the thumb or finger is inserted in the notch 33 and beneath the double thickness portion of the flap 22. In other words, a portion of the flap 22, which is adhered to the extended portion 31, is grasped between the thumb and fingers and is pulled upwardly. This action causes the paperboard to tear along the fold line 20 and also longitudinally of the flap 22. The extended portion 31 forms a tear strip which folds through the upper layer of the flap 22 and accordingly a strip of paperboard of double thickness is torn away from the top of the carton.

After the strip has been torn from the package closure, the remainder of the flap 22 may be folded upwardly with the flap 24 and the flaps 23 and 25 may be folded upwardly so as to expose the carton contents. This type of package opening means is usually implied where no reclosing feature is desired or necessary.

In accordance with the patent statutes, I have described the principles of construction and operation of my carton with tear strip opener and 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. An opening means for a tubular carton, the carton including rectangularly arranged side walls, and closing flaps hingedly secured to an end of said wall panels, one of said flaps having a body portion of a size substantially equal to the size of the carton end, and having an extended portion hingedly secured to the end thereof along a weakened line of separation, said extended portion being folded in surface contact with the flap to which it is secured and to over-lie the same, the opposed flap over-lying the extended portion and the flap to which it is secured and being adhered in surface contact thereto, whereby said extended portion may be grasped and pulled through flap, carrying with it the portion of said opposed flap to which it is secured.

2. The construction described in claim 1 and including a short cut line in said opposed flap, substantially alined with the edge of the extended portion in sealed condition of the carton.

3. The construction described in claim 1 and including a notch in an end edge of said opposed flap, said notch having a side substantially in registry with the end edge of said extended portion.

4. A carton embodying an opening means and including tubularly arranged side and end walls hingedly connected together, closing flaps hingedly secured to an end of said walls, two of said flaps being folded inwardly into substantially co-planar relation, a third flap of a size substantially equal to the size of the end of the carton extending over the first folded flaps, an extended portion on the end of said third flap, and connected thereto by a readily separable weakened line of connection, said extended portion being folded to over-lie the surface of the third flap, the fourth flap being in opposed relation to the third flap and being folded to over-lie said extended portion and said third flap and adhered thereto to the remainder of the third flap, whereby said extended portion may be pulled through the fourth flap, tearing therefrom the portion of said fourth flap adhered to said extended portion.

5. The construction described in claim 4 and including a short cut line in said fourth flap substantially coinciding with the end edge of said extension.

6. The construction described in claim 4 and including a notch in the end edge of said third flap, said notch having an edge substantially coinciding with the end edge of said extension.

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