Jan. 14, 1958 H. A. STOLLER ET AL 2,819,832

CARTON CONSTRUCTION

Original Filed Feb. 18, 1953

Fig. 1.

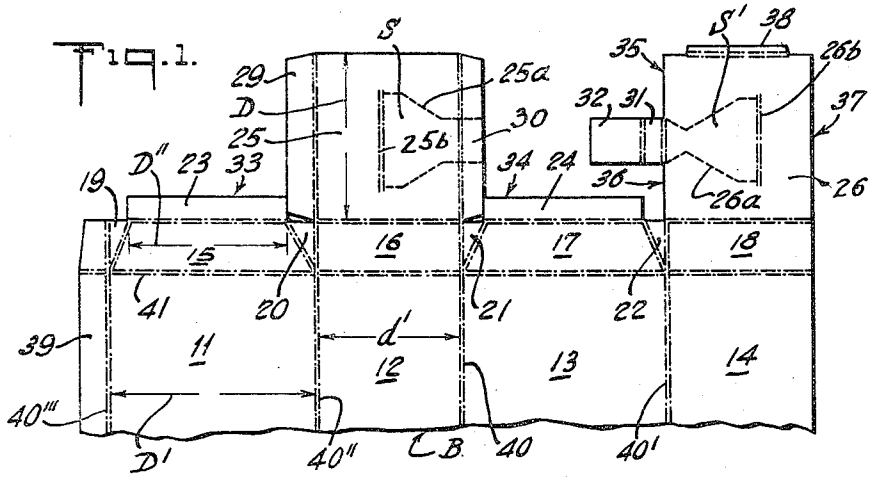



Fig. 2.

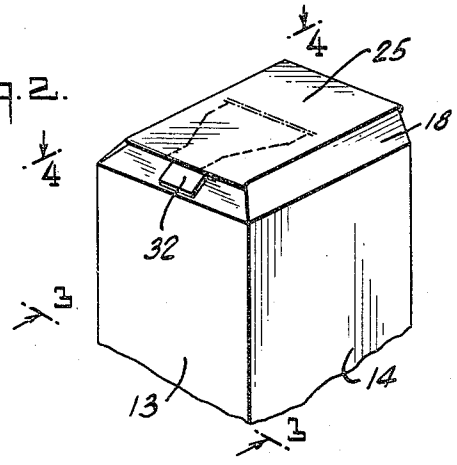



Fig. 3.

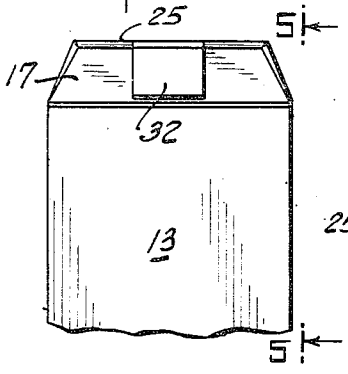



Fig. 4.

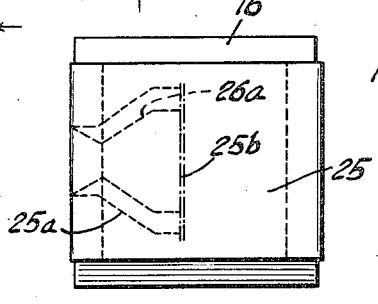
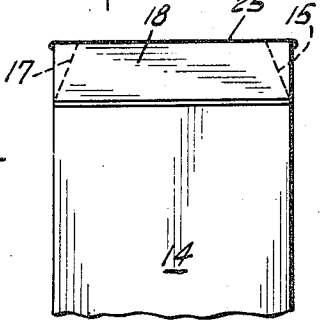



Fig. 5.




INVENTOR.
HAROLD A. STOLLER

BY

ATTORNEY

United States Patent Office

2,819,832

Patented Jan. 14, 1958



2,819,832

# CARTON CONSTRUCTION

Harold A. Stoller, Metuchen, N. J.

Substituted for abandoned application Serial No. 337,529, February 18, 1953. This application April 23, 1956, Serial No. 579,815

2 Claims. (Cl. 229—17)

This application is a substitute for my earlier application, Serial No. 337,529, filed February 18, 1953, and was filed after it had become abandoned.

This invention relates to a container made from a suitable blank of sheet material scored and cut to delineate single or multiple units of the end product, so formed that it is adapted to be readily assembled into hollow tubular form, filled and sealed. One end is initially perforated, scored and so dimensioned as to provide cooperating sealing portions and further cooperating portions to provide sanitary sealing spout portions for dispensing the contents of the container while enabling the same to be resealed in a sanitary and effective manner.

One of the desired objects is that the container be adapted to have the top thereof folded to flat form for stacking purposes, at the same time being free of ridges, overlaps, depressions, and the like, so that no outside water or other contaminants can accumulate thereon, to provide an improved method of tearing open a dispensing opening, with a clean sanitary pouring lip which may be reclosed conveniently to maintain sanitation, and to provide recesses so that the user may conveniently lift and carry the container without contamination of the area which contacts the contents during the pouring operation. The folding procedure herein described also gives added strength to the container top by reason of the triangular positions of the upper panels, resulting in a double strength at each of the four upper corners.

The top horizontal surface, described above, has one horizontal dimension approximately equal to the top scored edge of one of the side wall panels; the other horizontal dimension is approximately equal to the top scored edge of one of the two upper panels intermediate the inscribed pair of triangular folding portions.

A further object of the invention is to provide a foldable container blank having supporting triangular folds and sloping upper panels to form a leakproof end closure of relatively great strength and rigidity, with a substantially flat top to permit stacking the containers when filled.

A further object of of the invention is to provide a container with a top end preformed to provide a convenient means for gripping, using and carrying the container.

A further object of of the invention is to provide a container of such structural characteristics that it may be originally shipped in flat form and readily assembled at the point of filling the same with the contents to be dispensed, thereby effecting substantial savings in shipping space and costs.

A further object of the invention is to provide container fabricated as described hereafter, which is of such structural features as to enable the same, when closed, to be completely liquid and sift-proof.

The container top embodying the invention is adaptable to various forms of many-sided containers, such as square, rectangular and tapered; the normal sides of the



containers are referred to hereinafter as "panels." Certain sections of the panels are outlined by scoring and are part of the folding procedure; these are referred to herein as "upper rectangular panels." Other sections, further extensions of the panels, are also involved in the folding procedure; they are referred to herein as "flaps." Certain other sections (which are further extensions of flaps), likewise involved in the folding procedure, are herein referred to as "tongues."

The method of the invention further contemplates fabricating the containers from flat into tubular form, as more particularly described below and shown in the accompanying drawings, wherein illustrative forms of the invention are shown, and wherein:

Fig. 1 is a fragmentary plan view of an upper end of a flat blank of material, cut, scored and preferably perforated pursuant to the invention,

Fig. 2 is a perspective view of the upper end of the container formed in accordance with the method of the invention,

Fig. 3 is a side elevational view, taken on line 3—3 of Fig. 2, with the pouring spout portion of the container shown sealed,

Fig. 4 is a top plan view thereof, taken on line 4—4 of Fig. 2, and

Fig. 5 is an end elevational view, taken on line 5—5 of Fig. 3.

The drawings show illustrative forms of the invention which, as will be apparent from a consideration of the description herein, may be embodied in other forms.

As shown in Fig. 1, the flat blank of material B is scored as at **40**, **40'**, **40''** and **40'''** to divide the blank into side-wall or lower panels **11**, **12**, **13** and **14**; upper panels **15**, **16**, **17** and **18** are formed by further score lines, as shown, for example, at **41**, marking the points of connection of said upper panels with the said side walls. Two alternate upper panels **15**, **17**, are scored as shown in the drawing, to define two triangular ends **19—20** and **21—22**, respectively, within each of said panels **15**, **17**. It will be noted that the base of each triangle is of the height of the rectangular upper panel within which it is formed, and that, when said upper panel is folded along the hypotenuse of said triangle (Fig. 2), said alternate panels **15**, **17** will be caused to fold inwardly and simultaneously bring the inside of the upper panels **16**, **18** of the other two alternate side walls **12**, **14** without triangles into contact with the under faces of said triangles. The end supporting flanges **23**, **24**, hereinafter described, extending from the upper panels **15**, **17**, are of approximately the same width as the said upper panels less the shorter sides of said triangles and are adapted to be folded outwardly of said panels **15**, **17** and at substantially right angles to the side walls **11**, **13** to serve as supports for the end flaps **25**, **26**, so that, when the blank is folded as hereinafter described and as shown in Fig. 2, a sturdy, substantially flat top container may be formed.

Panels **15—18** in the folded carton (Fig. 2) extend inwardly of the side walls and rigidly support and strengthen the top of the container. Foldable end closing flaps **25**, **26** are formed as extensions of the alternate sides **12**, **14** whose upper panels **16**, **18** are not provided with triangles.

One of said flaps (**26**) is in the folding of the upper end of the carton to the form shown in Fig. 2, disposed beneath the other (**25**); the latter is provided with foldable tongues **29**, **30** along two edges thereof. In forming the container from the flat blank of material B shown in Fig. 1 to the form shown in Fig. 2, the side walls, **11**, **12**, **13**, **14**, are formed up by folding along score lines **40** through **40'''** so as to define a hollow tubular form. One

of the side walls (for example, 11) may be provided with a sealing flange 39 which, in the completely formed container, may be positioned beneath side wall (14) and secured thereto by means of any suitable adhesive, mechanical or other means.

The blank B of Fig. 1 may be readily folded along the line 40, so that the walls 13—14 and 11—12, will be disposed in close superposed relation for convenience in stacking for storage and shipment. At the proper time, the so partially folded blank may be readily opened up and the upper panels 15 and 17 folded inwardly; the end supporting flanges 23, 24, which extend from the alternate upper panels 15, 17 intermediate the triangles are folded outwardly; end flap 26 of side wall 14 is folded on the end-supporting flaps 23, 24; then upper panels 16, 18 are folded inwardly. The end flap 25 is folded over end flap 26 and the tongues 29, 30 extending from end flap 25, are folded over and under end flap 26 and over the end-supporting flanges 23, 24 to seal the upper end of the container.

Tongue 31, extending from flap 26, will, at this time, be disposed beneath flap 24 and tongue 32 will be disposed, on panel 17.

The end forming flaps 25, 26 are preferably provided with spout or double orifice closure portions such as S, S', which may be defined by score and/or perforation lines or the like, such as *25a, 26a, 25b, 26b*. One of the spouts, such as spout S of end flap 25 (the uppermost end flap in the preferred form of the invention), has tongue portion 30 which is foldable over the edge 35—36 of end flap 26 and over the edge of end supporting flange 24. End flap 26 is provided with a spout portion S' which may be of any suitable form and which preferably terminates in extended tongues 31, 32 foldable over and under end-supporting flange 24 and to overlie panel 17 (Fig. 2). Tongue portion 30 of end flap 25 is preferably previously weakened as by perforations to define the end of the separable portion of end flap 25 to form pouring spout S therein. Said spout may be secured to tongue portion 31 of spout S', so that, when the latter is lifted, the spouts S, S' may be formed in one operation. If desired, the dimensions of the spouts S of the outer end flap 25 may be greater than that of the underlying spout portion S' of the end flap 26 to cooperate therewith in dispensing the contents of the container.

When the container is folded up to the complete form shown in Fig. 2, the end flaps 25, 26 will have one dimension D substantially equal to the dimension D'' which is the width D' of each panel 15, 17 extending from such side walls less the shortest sides of the triangular portions in said rectangular panels. When the carton is folded to the form shown in Fig. 2, the upper end thereof will be effectively reinforced, the inwardly inclined rectangular panels 15, 17 cooperating with the flat top of the container to provide a convenient means for gripping and carrying the container. The various parts above described may be secured together by means of adhesive, staples, or other mechanical or non-mechanical means suited for the purpose; a paraffin or other coating may be applied so as to make the container effectively leakproof and sift-proof.



It will be apparent that the contents of the completed, sealed container may be readily dispensed by simply grasping the extended tongue portion 32 of the inner spout S' and lifting the same, thereby carrying with it the underlying tongue portion of the spout S which may simply overlie it or may be secured thereto by adhesive or any other suitable means. The so-formed spout portions may be readily restored by refolding them to their nesting positions within the end flaps 25, 26, to reseal the container.

I claim:

1. A leakproof tubular container of sheet material comprising a blank having a plurality of side wall panels foldable into tubular form and overlapping end flaps as extensions of two alternate side wall panels, score lines on all of said side wall panels defining adjacent rectangular upper panels equal in number to said side wall panels, two of which upper panels directly connect said end flaps and their side wall panels, score lines within two alternate rectangular upper panels defining, when the blank is folded into tubular form, triangles in said alternate upper panels between the end flap connecting panels, each foldable along its hypotenuse to direct the two alternate panels inwardly and simultaneously bring the insides of the two upper panels of the remaining two alternate side walls without triangles into contact with the inside surfaces of said triangles, outwardly foldable flaps of uniform width on said alternate upper panels having opposite parallel ends aligned with corresponding ends of said hypotenuses, said flaps being of approximately the same width as the said alternate side walls without triangles so that, when said end flaps are folded one over the other, they define a substantially flat top for the container and the rectangular upper panels are folded inwardly between the side walls for support and strengthening purposes, a spout portion partially formed in each of said overlapping end flaps and adapted to be completely formed by lifting along indicated lines, the lower one of said spout portions being extended past the marginal edge of its end flap to define a tongue portion normally folded around one of said outwardly foldable flaps, whereby said alternate rectangular portions having the triangular portions may be folded inwardly in the assembly of the container to provide inwardly inclined surfaces beneath the folded end flaps, the said flap having the tongue portion being adapted to be folded under the other end flap, so that said tongue portion may be lifted to facilitate simultaneous separation of the spout portions.

2. A container as set forth in claim 1, in which the said end flaps have a horizontal dimension approximately equal to that of a rectangular panel having the foldable triangles less the shortest sides of said triangles.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 2,293,060 | Hothersall | Aug. 18, 1942 |
| 2,581,237 | Casler | Jan. 1, 1952 |
| 2,583,211 | Fleming | Jan. 22, 1952 |
| 2,596,225 | Eaton | May 13, 1952 |