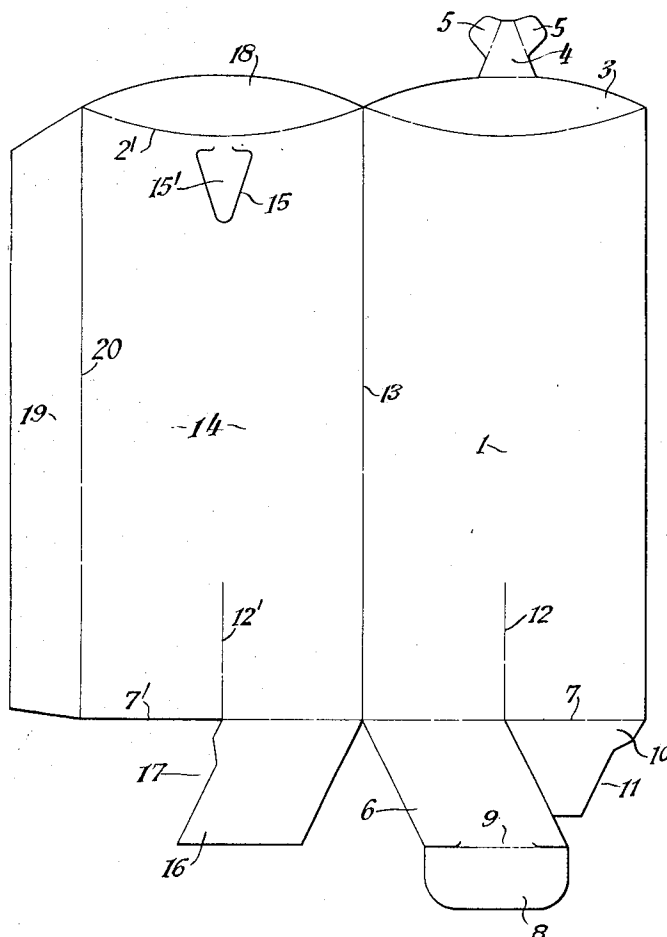
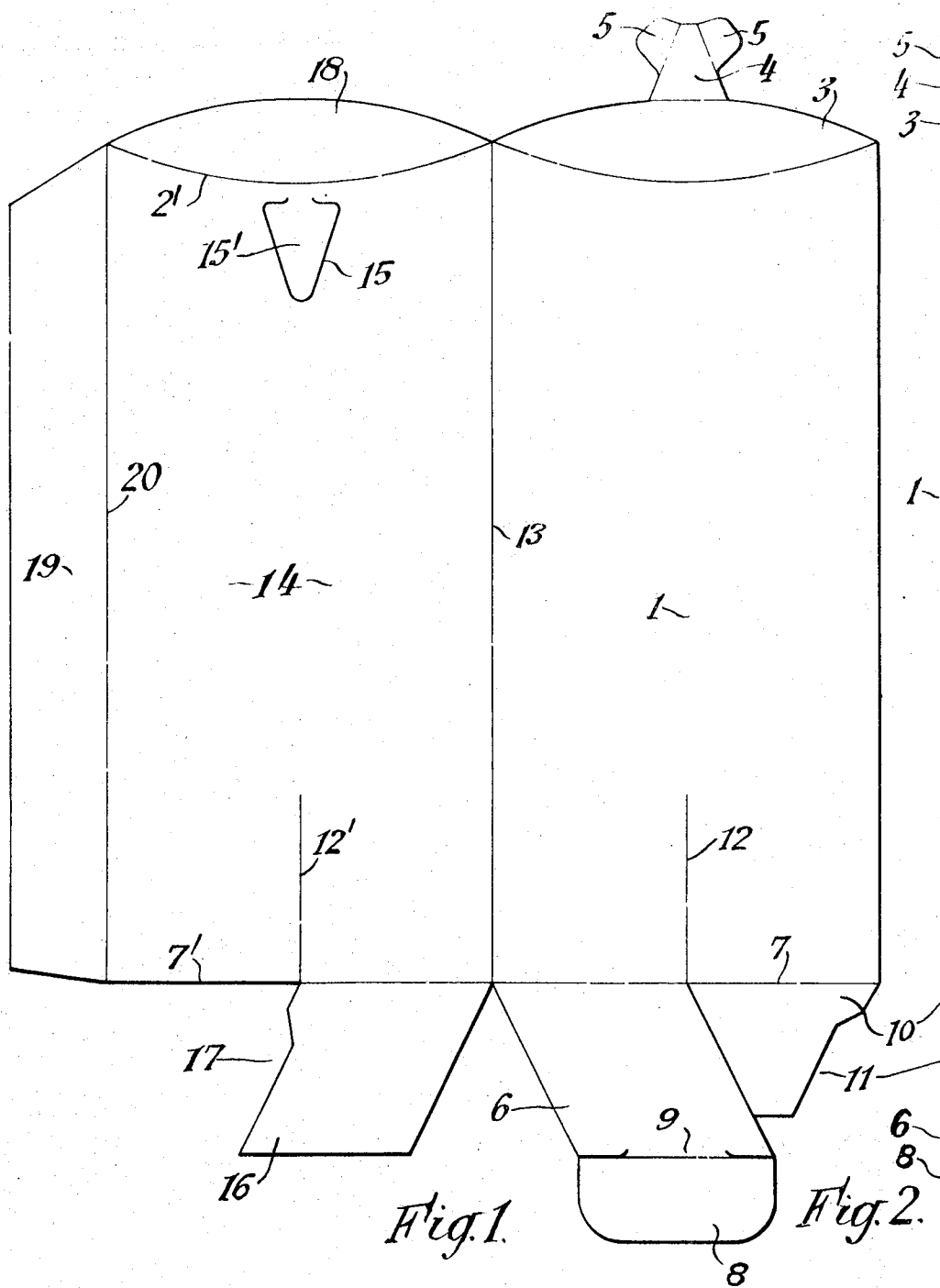
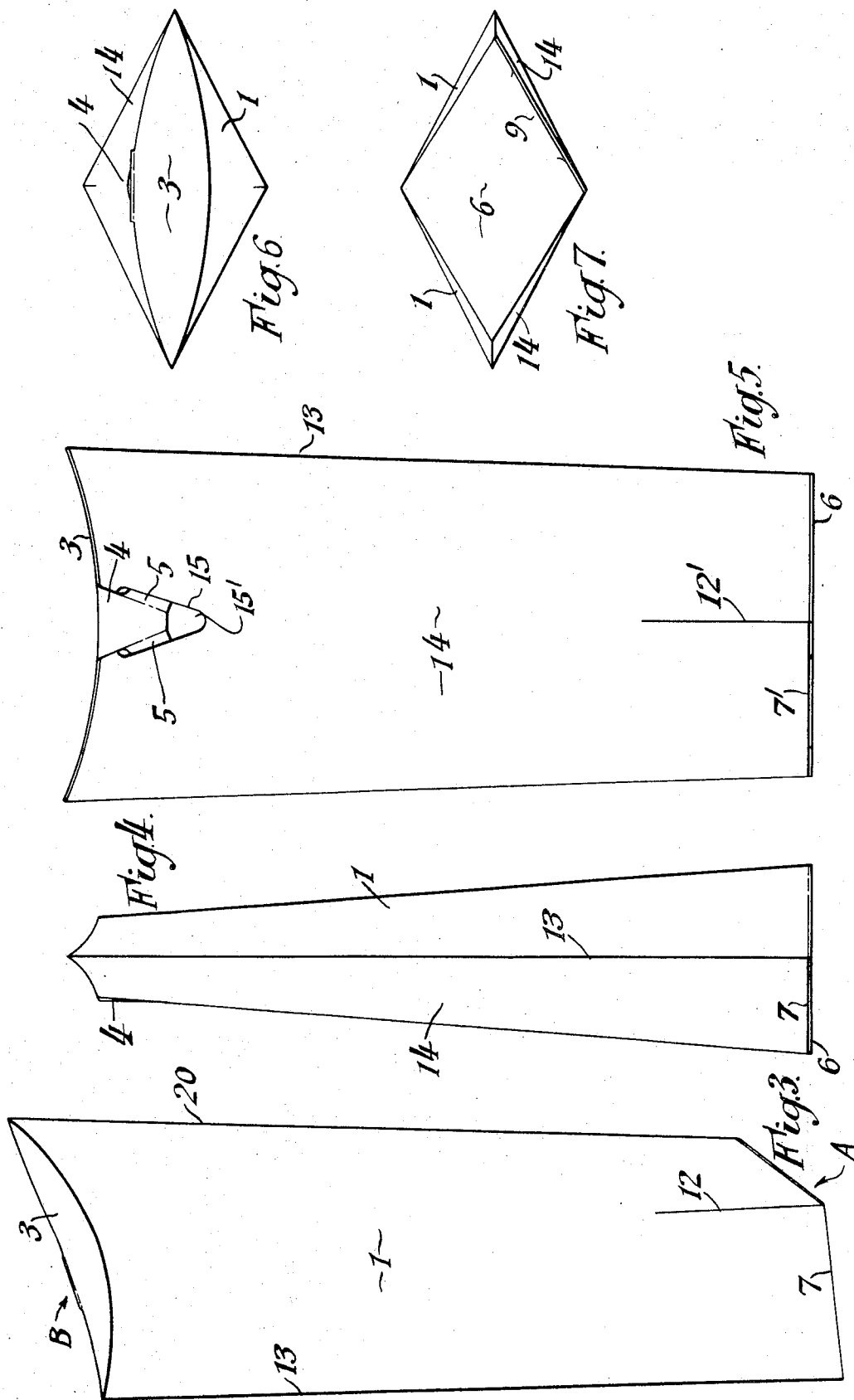








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CARTON

This invention relates to a carton for use, for example, as a package for a cosmetic, its object being to provide a construction which has the advantages, inter alia, of exhibiting in its erected condition an eye-catching and unusual countour whilst nevertheless being capable of formation from a relatively simple flat blank.

According to the present invention a tubular carton has, in its erected condition, one end of substantially parallelogrammic cross-section and closable by at least one flap hinged on an end edge of the body of the carton, the other end being of oval-bail shaped cross-section and being closable by at least one flap hinged on an end edge of the body of the carton.

In this description, the term "oval-bail shaped" means a shape which is bounded by two symmetrical curves and having a longer axis which corresponds to the width of the carton and a shorter axis which corresponds to the front-to-back depth of the carton, the curves being similar or different and being arcuate or non-arcuate.

In a preferred form, the cross-section of the carton in its erected condition changes as a smooth and stepless progression from the parallelogrammic section of the one or "first" end to the oval-bail shaped section of the other or "second" end. In a more preferred form, the carton also tapers in front-to-back depth progressively from its first to its second end; such a carton being particularly suitable for accommodating a tapered collapsible tube. In an especially preferred form, the carton tapers also in width towards its first end permitting of erection of the carton from a blank having parallel side edges.

The cross-section of the first end may conveniently be of rhombic shape, with a longer axis of symmetry corresponding to the width of the carton and a shorter axis of symmetry corresponding to the front-to-back depth of the carton.

The first end may have its closure formed by end flaps hinged on two opposed end edges of the body, and a third tabbed flap hinged on a third end edge of the body so as to overlie the first two flaps and to permit the tab to be introduced between the fourth end edge of the body and edges of the first two flaps, thereby to lock the set of three flaps releasably in closing condition.

Alternatively, the first end may be closed in the manner of an envelope pack, the closure being formed by end flaps hinged one on each of the four end edges at said first end of the body. One of said flaps is arranged to underlie the pair of flaps hinged on the end edges adjacent said underlying flap and the said three flaps define a tab-receiving opening in the centre of the first end of the body. The remaining flap, i.e., that hinged on the end edge opposite the underlying flap, is arranged to overlie the said pair of flaps and has a tab for location in the said tab-receiving opening thereby to lock the four tabs releasably in a closing condition.

Preferably the plane of the or each closing flap is normal to the longitudinal axis of symmetry of the carton body, whereby the carton as a whole may be stood in upright position upon that end.

The second end of the carton may have a first oval-bail shaped flap hinged along one of the opposed end edges of the body at the second end of the carton, and

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a second oval-bail shaped flap hinged along the opposed edge, the second such flap being provided with means for retaining it in the closing position. In a preferred arrangement, a flap adapted to close the oval-bail shaped end of the carton has a neck-and-headed tab capable of engagement, by appropriate deformation normal to its own plane, into a receiving opening in the body of the carton. The opening may be constituted by, for example, a substantially triangular cut-out, or a portion which is severed about most but not all of its triangular contour so as to permit depression of an area of the body when inserting the tab through the aperture so formed. By suitably inclining the engaging edges of the closing tab in relation to those edges of the aperture with which it engages, the closing tab may be made easily releasable by pressing on the most remote edges of the carton to tend to separate, and thereby pulling the tab out of engagement with its aperture.

In an alternative arrangement, one of the oval-bail flaps closing the second end of the body has a planar tab hinged thereto for insertion into a slot extending along a portion of the hinge between the other oval-bail flap and its adjacent end edge thereby to retain the flaps in the closing position.

The presence in the carton of the invention of a flap or flaps releasably closing the second end has the advantage that the package may be opened to the extent to permit inspection of its contents, without at the same time opening it to the extent to permit removal of the contents provided that the cross-section of the contents (such as a bottle or collapsible tube) is greater than can be passed through the oval-bail shaped end of the carton without destructions of the carton.

In a preferred form, the or each flap which is adapted to close the oval-bail shaped end of the carton is hinged along an end edge of the carton and is adapted to lie initially in the same plane as the major wall to which it is hinged, i.e. the whole can be formed from an initially flat blank. In such a case, the line of hinging will lie along a curve contained within that major wall so that, when the carton is erected, its end will be recessed or depressed in that curved formation, the result being to impart an attractive and unusual top formation to the erected carton.

Preferably the whole is so arranged as to be capable of formation by bending up, and securing where necessary, of portions of an initially flat blank of stiff paper, carton material or the like. Accordingly the present invention provides also a blank for erection into a carton of the invention, which blank comprises:

- i. a first elongate portion, having parallel side edges, to constitute a first major wall of the carton;
- ii. a second elongate portion, having parallel side edges, to constitute an opposed second major wall of the carton, the second portion being hinged along one of its side edges to the first portion;
- iii. means for securing together said first and second portions along their free side edges to form a sleeve, for example, a securing flange hinged along the free side edge of one of said portions and securable by adhesive or other equivalent means to an area adjacent the free side edge of the other of those two portions;
- iv. means for closing and maintaining one end of said sleeve in a parallelogrammic shape, said means including at least one flap hinged to a corresponding

end edge of one of said first and second portions, said means preferably being constituted by a substantially triangular closing flap hinged on one half of an end edge of one of the elongate portions, plus a substantially rhombic-shaped closing flap hinged on the corresponding half of an opposed end edge of the other elongate portion, plus a substantially rhombic-shaped closing flap (with locking tab) hinged on the other half of said end edge of the one elongate portion, the first two flaps being cut away or recessed along an edge to provide an opening to receive the locking tab between them and the other half of said end edge of the other elongate portion; v. means for closing and maintaining the other end in an oval-bail shape, said means including at least one flap hinged to a corresponding end edge of said first and second portions, said means preferably being constituted by a first oval-bail shaped flap hinged along a correspondingly curved other end edge of one of the elongate portions and a second oval-bail shaped flap hinged along a correspondingly curved other end edge of the other of the elongate portions, the second flap being provided symmetrically at its centre with a neck-and-headed locking tab capable of insertion, by being bent across its own plane, into an isosceles triangular shaped partial cut out situated in that elongated portion to which the first such oval-bail shaped flap is hinged.

All of the hinging formations may be partial cut or score lines, as well known in the packaging carton art and it is preferred that the blank be formed from a single piece of carton forming material. It is preferred also that each of the first and second portions should have a score line extending centrally and normally from its other (or second) end edge to assist closure of that end in the parallelogram shape.

The invention is illustrated further in the accompanying drawings in which:

FIG. 1 is a plan view of a blank of the present invention;

FIG. 2 is an edge view of the blank of FIG. 1;

FIG. 3 is a front perspective view of a carton of the present invention erected from the blank of FIG. 1;

FIG. 4 is a side view of the erected carton of FIG. 3;

FIG. 5 is a rear view of the erected carton of FIG. 3;

FIG. 6 is a plan view of the erected carton of FIG. 3;

FIG. 7 is an underneath plan view of the erected carton of FIG. 3;

Referring first to FIGS. 1 and 2 a blank in accordance with a preferred embodiment of the present invention consists of a planar blank of cardboard or the like carton-forming material having the outline shape shown in FIG. 1. This blank comprises a first elongate portion 1 of substantially rectangular shape except for a concavely arcuate end 2. An oval-bail shaped flap 3 is hinged along the arcuate end 2 and itself has a neck-and-headed tab 4 hinged at the centre of its outer edge. The head of the tab 4 is formed of two wing portions 5 hinged to a substantially triangular-shaped central portion of the tab.

A rhombic-shaped flap 6 is hinged along one half of the end 7 of the portion 1 opposite the arcuate end 2 and hingedly carries at its outer end a locking tab 8. To permit the locking tab 8 to adopt readily an attitude perpendicular to flap 6, the said tab is hinged to flap 6 only along a central portion 9. A substantially triangu-

lar flap 10 is hinged along the remaining half of the end 7 with the adjacent side edges of flaps 6 and 10 juxtaposed and mutually parallel. The other side of flap 10 is recessed at 11 to provide an opening in the erected carton for the locking tab 8. A score line 12 extends in portion 1 from the centre of end 7 and normally to that end to permit bending of said end until flaps 6 and 10 are mutually perpendicular.

A second elongate portion 14 is hinged to the first portion 1 along the side edge 13 adjacent to flap 6. This second portion is of identical shape to the first portion 1 but has an isosceles triangular shaped partial cut out 15 located centrally near the arcuate end 2' of said portion 14. The triangular flap 15' left by the cut-out is hinged at its base to the surrounding part of portion 14 to permit arcuate movement of the flap 15' out of the plane of portion 14. A substantially rhombic-shaped flap 16 is hinged along that half of the straight end 7' of portion 14 adjacent portion 1 so that the adjacent side edges of flaps 6 and 16 are mutually divergent. The side edge of flap 16 remote from flap 6 is recessed at 17 to provide an opening in the erected carton for the locking tab 8. A score line 12' extends in the portion 14 from the centre of end 7 and normally to that end to permit bending of said end until it adopts a right-angular configuration about the centre. The score line 12' is identical with score line 12 to ensure symmetry in the erected carton.

A second oval-bail shaped flap 18 is hinged along the arcuate end 2' of portion 14 and is identical in shape with the flap 3 but does not carry a tab 4. The blank is completed by an elongated trapezoidal securing flap 19 hinged along the side edge 20 of portion 14 remote from portion 1.

The blank is cut or otherwise formed from an appropriate piece, usually square, of carton-forming material and the hinges referred to above are each formed by partial cut or score lines.

Referring now to the remaining figures the blanks of FIGS. 1 and 2 can be erected into a carton of the shape shown in FIGS. 3 to 7 inclusive. This carton has a first end A of parallelogrammic cross-section, a second end B of oval-bail shaped cross-section and tapers in a smooth and stepless progression from the end A to the end B, the front-to-back taper being considerably more pronounced than the taper in width.

The carton is erected from the blank by first moving the securing flap 19 arcuately about its hinge until it lies on top of portion 14. The portion 1 is then moved arcuately to a position where it superimposes portion 14 with flap 19 sandwiched between said portions. Flap 19 is glued or otherwise secured to portion 1 to form a collapsed sleeve which can be opened by pressing together the now opposed side edges 13 and 20. With appropriate pressure applied to said edges towards the end of the sleeve carrying flaps 3 and 18, the ends 2 and 2' are forced apart to form an oval shaped mouth. This mouth is closed by arcuately moving flap 18 across the mouth into a position normal to the longitudinal axis of the sleeve, similarly arcuately moving flap 3 to overlie flap 18 and then engaging the head of tab 4 in cut out 15. The engagement of tab 4 in cut out 15 is effected by arcuately moving wings 5 put of the plane of the central portion of the tab and pressing those wings together until they are sufficiently close to permit entry into cut out 15. The wings are then released, whence they tend to return to the said plane thereby engaging

the inner surface of the sleeve and retaining the flaps 3 and 18 across the mouth to form end B of the carton.

The other end of the sleeve is opened by applying pressure to the edges 13 and 20 towards said end whereby the ends 7 and 7' are forced apart and caused to bend about their respective score lines 12 and 12' to form a parallelogrammic shaped mouth. This mouth is closed by arcuately moving flap 10 across the mouth into a position normal to the longitudinal axis of the sleeve arcuately moving flap 16 to overlie flap 10 and then arcuately moving flap 6 to overlie flap 16. The recessed portions at 11 and 17 define, with that edge of the mouth not carrying a flap, an elongate opening to receive tab 8 and the end A of the carton is completed by engagement of the tab 8 in said opening.

This formation of end A can be carried out before or after formation of end B in the manner described above. Usually end B will be formed first and then the sleeve opened to receive the article(s) such as a collapsible tube to be contained within the carton before end A is formed.

Having regard to the foregoing disclosure, the following is claimed as the inventive and patentable embodiments thereof:

1. A carton erected from a substantially rectangular blank of carton-forming material and comprising, in its erected condition,
 - a tubular body, the cross-section of which changes as a smooth and stepless progression from a parallelogrammic section at one ("first") end to an oval-bail shaped section at the other ("second") end and which body tapers in front-to-back depth progressively from its second to its first end;
 - means closing the first end of the body, which means includes at least one flap hinged on an end edge at said end; and
 - means closing the second end of the body, which means includes at least one flap hinged on an end edge at said end.
2. The carton according to claim 1 in which in its erected condition the means closing the first end comprises
 - a first flap hinged on one end edge at the first end of the tubular body;
 - a second flap hinged on the end edge at the first end of the tubular body opposite that end edge carrying the first flap;
 - a third flap hinged to a third end edge at the first end of the tubular body and underlying the said first and second flaps;
 - a tab-receiving opening in the centre of the first end of the tubular body defined between the said first, second and third flaps;
 - a fourth flap hinged to the fourth end edge at the first end of the tubular body and overlying the said first

and second flaps;

a tab carried by the fourth flap and extending into the tab-receiving opening thereby releasably locking the flaps to close the first end of the tubular body.

3. The carton according to claim 1 in which the end edges at the second end of the tubular body are both concavely arcuate and in which in its erected condition the means closing the second end comprises

- a first oval-bail shaped flap hinged along one end edge at the second end of the tubular body;
- a second oval-bail shaped flap hinged along the other end edge at the second end of the tubular body to overlie the said first flap; and
- means retaining the second flap in the closing position.

4. The carton according to claim 3 in which the means retaining the second flap in the closing position comprises

- an opening of triangular shape in a wall of the tubular body; and
- a neck-and-headed tab carried by the second oval-bail shaped flap and deformable normal to its own plane for insertion into the said opening.

5. The carton according to claim 3 in which the means retaining the second flap in the closing position comprises

- a slot extending along a portion of the hinge between the first oval-bail-shaped flap and its adjacent end edge; and
- a planar tab hinged to the second oval-bail shaped flap for insertion into the said slot.

6. A carton according to claim 1 erected from a blank of carton-forming material.

7. A blank of carton-forming material for erection into a carton as defined in claim 1, which blank comprises

- a first elongate portion, having parallel side edges, to constitute a first major wall of the tubular body;
- a second elongate portion, having parallel side edges, to constitute an opposed major wall of the tubular body, said second portion being hinged along one of its side edges to the first portion;
- means for securing together said first and second portions along their free edges to form a sleeve;
- means for closing and maintaining one end of said sleeve in a parallelogrammic shape, said means including at least one flap hinged to a corresponding end edge of one of said first and second portions; and
- means for closing and maintaining the other end of said sleeve in an oval-bail shape, said means including at least one flap hinged to a corresponding end edge of one of said first and second portions.

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