

Jan. 18, 1966

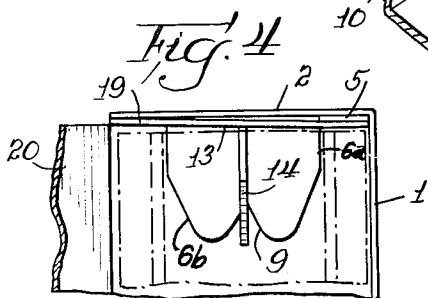
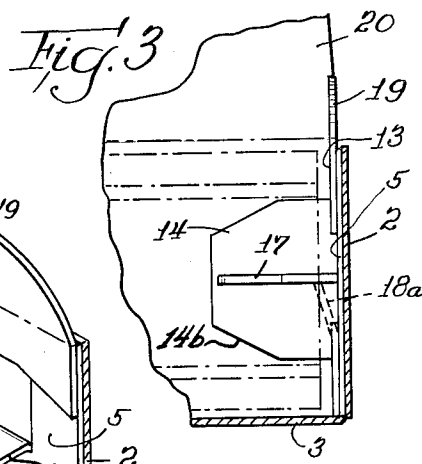
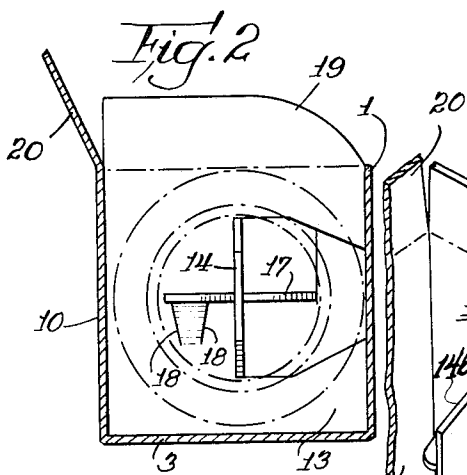
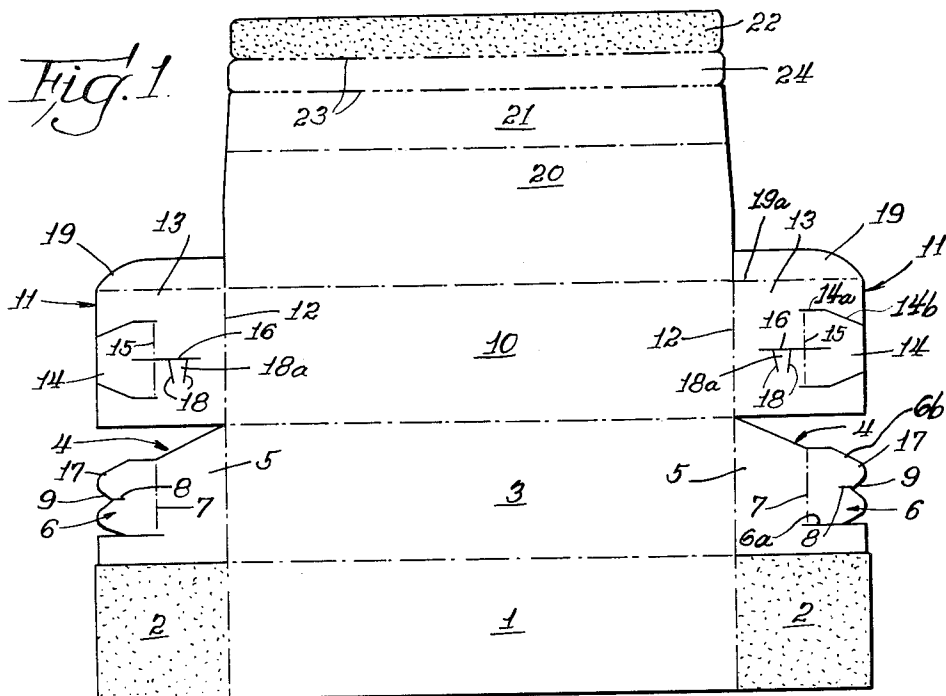
H. L. METZGER

3,229,812

ROLL-SUPPORTING DISPENSING CARTON

Filed Oct. 16, 1963

3 Sheets-Sheet 1



INVENTOR.

Henry L. Metzger

BY

Godwin H. Kuecher atty.

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H. L. METZGER

3,229,812

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3 Sheets-Sheet 2

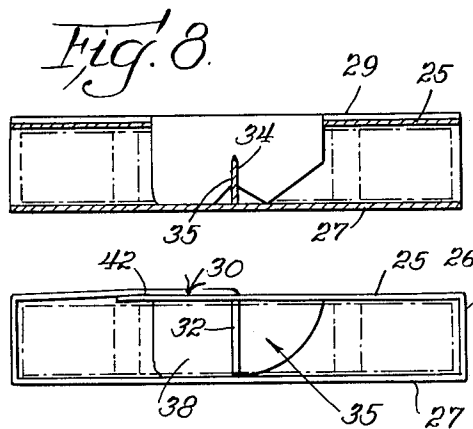
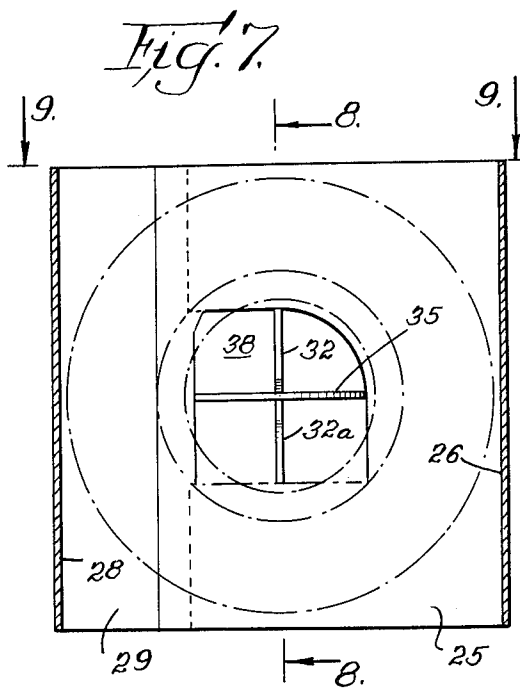
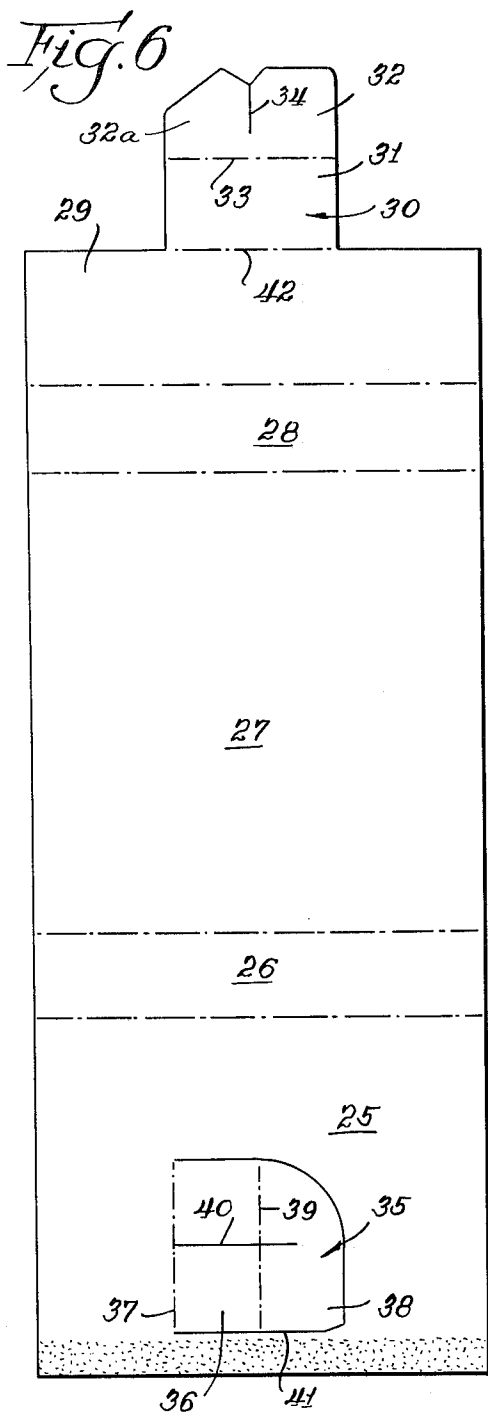


Fig. 9

INVENTOR.
Henry L. Metzger
BY
Gordon H. Hueschen
Att'y.

Jan. 18, 1966

H. L. METZGER

3,229,812

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3 Sheets-Sheet 3

Fig. 10.

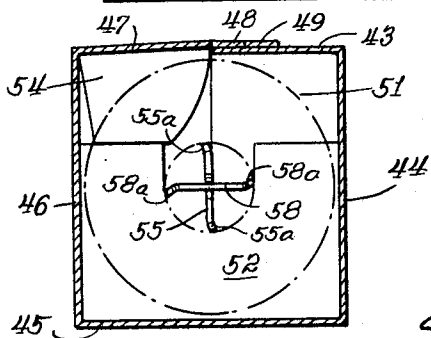
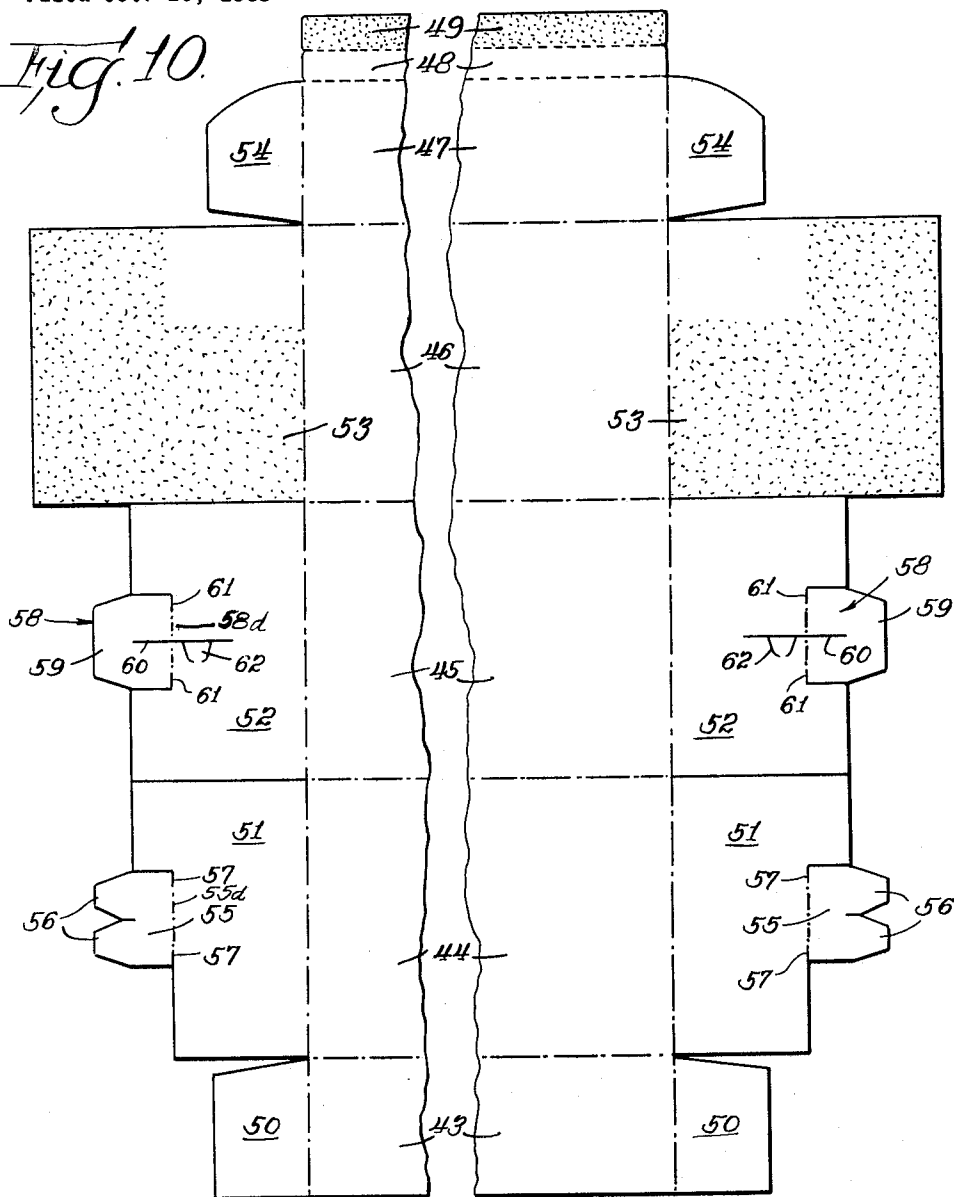


Fig. 11.

INVENTOR.
Henry L. Metzger
BY
Gordon P. Kueschen
Att'y.

1

3,229,812

ROLL-SUPPORTING DISPENSING CARTON
Henry L. Metzger, Castleton on Hudson, N.Y., assignor
to KVP Sutherland Paper Company, Kalamazoo, Mich.,
a corporation of Delaware
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4 Claims. (Cl. 206—58)

The present invention relates to dispensing cartons and is more particularly concerned with a dispensing carton having means provided for supporting and positioning a roll of sheet material having a hollow core to permit the roll to rotate freely thereon.

When a roll of sheet material such as foil or adhesive tape is positioned so that the periphery thereof rests on the bottom of a dispensing carton, a great deal of frictional resistance is encountered when it is attempted to dispense the sheet material from the carton, since the entire roll must rotate during the dispensing process.

Moreover, when a roll of foil is so packaged that it rests on the bottom of the carton, there is a tendency for the roll to flatten. Such flattening interferes with the proper dispensing of the product.

It is an object of the invention to provide a dispensing carton having means for supporting a roll of sheet material having a hollow axial core, such as is formed when the sheet material is wound on or in the form of a tube, so that the sheet material may be readily unwound and dispensed. It is a further object to provide a dispensing carton having positioning means extending into the hollow center of the tubular core of the roll to permit the roll to rotate freely thereabout. It is a still further object to provide a dispensing carton wherein the positioning means is integral with the other portions of the carton. It is still a further object to provide a dispensing carton wherein the means for positioning the rolls and the entire carton may be formed from an integral cut and scored blank. It is another object to provide such a carton which is readily assembled and wherein the positioning means is readily fixed into position. It is still another object to provide means for supporting and positioning rolls in a dispensing carton, which means is adaptable for use with many different types of dispensing carton structures. It is an important object of the invention to provide a dispensing carton formed from a die cut blank which suspends a roll of sheet or foil material with the carton spaced apart from the bottom thereof, thus protecting the product from crushing or damaging in shipment and preventing flattening of the roll at the bottom. The accomplishment of the foregoing and additional objects will become more fully apparent hereinafter.

The invention in its preferred embodiments is illustrated by the accompanying drawings in which:

FIG. 1 is a plan view of a blank suitably cut and scored for assembling a dispensing carton according to the invention.

FIG. 2 is a transverse sectional view taken at one end of the opened assembled carton.

FIG. 3 is a fragmentary vertical sectional view taken at one end of the carton.

FIG. 4 is a fragmentary top view taken at one end of the open carton.

FIG. 5 is an enlarged fragmentary perspective view partly broken away, taken from the inside at one end of the carton.

FIG. 6 is a plan view of a blank suitably cut and scored for assembling another embodiment of the invention.

FIG. 7 is a top view of the carton of FIG. 6 partly in section.

FIG. 8 is a vertical cross-sectional view taken at the line 8—8 of FIG. 7.

2

FIG. 9 is a vertical cross-sectional view taken at the line 9—9 of FIG. 7.

FIG. 10 is a plan view of a blank suitably cut and scored for assembling still another embodiment of the invention; and

FIG. 11 is a cross-section of the assembled carton of FIG. 10 showing the positioning of a roll of sheet material within the carton.

Referring to the drawings, FIG. 1 shows a cut and scored blank which may be used to form a carton according to the present invention suitable for containing and dispensing such materials as aluminum foil, paper, plastic film, or wax paper. FIGS. 2-5 show various views of the assembled carton. The carton comprises a front wall 1 having outer end wall flaps 2 hingedly affixed thereto, a bottom 3 having a pair of trunnion end flaps 4 each of which is divided into a proximal body member 5 and a distal trunnion member 6 hingedly affixed to the body member 5 along a score line 7. The trunnion member 6 has a longitudinal slit 8 extending to the end of the trunnion member 6 and dividing the trunnion member into a pair of bifurcations. The slit 8 should stop short of the score line 7 and preferably should extend only about one-half the distance from the end of the trunnion member 6 to the score line 7. In order to facilitate assembly of the carton, the mouth of the slit 8 may be somewhat rounded off or beveled, as shown at 9. The trunnion member 6 is provided with straight shoulders 6a and a tapered end 6b.

Hingedly affixed to the bottom member 3 is a rear member 10 having trunnion end flaps 11 hingedly affixed thereto at a score line 12. The trunnion end flaps 11 are comprised of a proximal body member 13 and a distal trunnion member 14 hingedly affixed thereto at a score line 15. The trunnion member 14 is comprised of straight shoulders 14a and a tapered end 14b. A longitudinal slit 16 is provided in the body member 13, extending a distance into the trunnion member, but stopping short of the end thereof. The length of the portion of the slit 16 present in the body member 13 should be sufficient to permit it to receive the adjacent bifurcation 17 of the trunnion member 6 when assembled. The length of the slit 16 extending into the trunnion member 14 should be at least as long as the unslit portion of the trunnion member 6 to enable the two trunnion members to mesh completely with each other, since in that position the unslit portion of the trunnion member 6 is engaged by the slit 16. Also, in the meshed position, the unslit portion of the trunnion member 14 is engaged by the slit 8. The result is a strong, rigid interlocked structure in which the trunnion members 6 and 14 are interlocked in the form of two planes intersecting each other at a line substantially in the axial direction of the carton.

A pair of slits 18 may be provided to form an entrance flap 18a which facilitates engagement of the two trunnion members. The trunnion end flaps 11 may be provided with dust flaps 19 connected to the flaps 11 at score lines 19a designed to prevent the entrance of dust into the carton and to strengthen the end portion of the carton and make it more rigid.

A cover 20 is hingedly affixed to the rear member 10, and affixed to the cover 20 is a cover flap 21, having a glue flap 22 removably affixed thereto by a tear strip 24 defined by scored and perforated lines 23.

In assembling the carton, the glue flap 22 is first glued or otherwise secured to the front wall 1. The trunnion end flap 11 at one end of the carton is then folded across the open end of the carton and the dust flaps 19 folded under the edge of the cover 20. The trunnion member 14 is folded inwardly until it is substantially perpendicular to the body member 13. The position of the trunnion

3

member 14 can be readily seen in FIG. 3. The trunnion end flap 4 is then partially folded over the trunnion end flap 11. The trunnion member 6 is folded inwardly and the bifurcation 17 inserted into the slot 16 of the trunnion member 11. The trunnion flap 4 is brought into contact engagement with the trunnion flap 11, at which point the trunnion members 6 and 14 are interlocked to form a rigid trunnion structure, as shown in FIGS. 3, 4 and 5. In FIG. 2 the perpendicular arrangement of the trunnion members is shown. The outer end flaps 2 are then glued or otherwise secured to the exposed portions of the body members 5 and 13.

The roll of sheet material is then inserted into the carton so that the trunnion comprised of members 6 and 14 enters and engages the hollow core of the sheet material or the tube over which the sheet material is wound. As a result of the tapering provided at the ends of the trunnion members as shown at 6b and 14b, as the roll is slid into one end of the partially formed carton, the tapered portions of the trunnion members engage the hollow core and raise the roll into position. When the roll has been fully inserted into position, it rests on the shoulders 6a and 14a and is retained in suspended position within the carton. The corresponding trunnion end flaps on the other end of the carton are then closed and glued in similar manner to form a sealed carton. The tapered portions of the trunnion members 6b and 14b at the end of the carton engage the hollow core of the roll in similar manner and raise it until it is supported on the shoulders 6a and 14a, the entire roll then being supported completely free of the bottom of the carton.

The carton is opened by removing the tear strip 24 at the perforated score lines 23, permitting the cover to be swung open. The end of the sheet material is withdrawn, and the cover reclosed with the cover flap 21 being inserted inside the front wall 1 behind the sheet material. The trunnion members support and position the roll in a position spaced above the bottom 3 and away from the sidewalls and cover, and permit it to rotate freely without substantially rubbing on any of these surfaces.

The embodiment shown in FIGS. 6-9 is similar to that shown in FIGS. 1-5 and described above, but is designed to contain a roll of material such as a pressure-sensitive adhesive tape having a relatively short axis. The cut and scored blank is shown in FIG. 6. It comprises a major face member 25 and edge 26 hingedly connected thereto. A bottom 27 is hingedly connected to the edge 26 and a second edge 28 is hingedly connected to the bottom 27. Hingedly connected to the edge 28 is a minor face member 29. A trunnion flap 30 is articulated to the minor face member 29.

The trunnion flap 30 comprises a proximal body member 31 and a distal trunnion member 32 hingedly connected thereto at a score line 33. The trunnion member has a longitudinal slit 34 at its leading edge, and may be tapered at its end to facilitate engagement.

A cooperating trunnion flap 35 is cut and scored from the major face member 25. The trunnion flap 35 comprises a proximal body portion 36 hingedly mounted at a score line 37 and having a distal trunnion member 38 hingedly connected to the body member 36 at a score line 39. A slit 40 is provided in the body member 36, extending a distance into the trunnion member 38 but stopping short of the end thereof. The portion of the slit 40 contained in the body member 36 must be sufficiently long to accommodate the bifurcation 32a of the trunnion member 32. The slit 40 should extend into the trunnion member 38 at least as far as the distance between the inner end of the slit 34 and the score line 33 of trunnion member 32 in order to enable the trunnion member 32 to extend completely into and engage with the trunnion member 38.

In assembling the carton, the top glue flap 29 is so

4

positioned and glued to the top 25 that the cut edge 41 of the trunnion flap 35 is aligned with the score line 42 at which the trunnion flap 30 is connected to the edge 29. This places the trunnion flap 30 in juxtaposed position over the trunnion flaps 35, as shown in FIG. 7. In this position the score line 37 is perpendicular to the score line 42.

A roll of tape may be inserted into the carton and placed in the position indicated by the broken line in FIGS. 7, 8 and 9. The trunnion member 35 is then folded downward into the open tubular center of the roll of tape until it is substantially perpendicular with the body portion 36. The bifurcation 32a of the trunnion member 32 is then inserted into the slit 40 and the trunnion member 32 is pushed downwardly, the slit 34 engaging the trunnion member 38, and the slit 40 engaging the trunnion member 32. As a result, a rigid trunnion member is formed about which the roll of tape may rotate freely. The periphery of the tape roll is retained in a spaced-apart position from the edges of the carton. The body members 31 and 36 may be glued together if desired. An outer carton may also be placed over the carton described or outer face members added to maintain the trunnion flaps in place. FIGS. 7, 8 and 9 show the orientation of the trunnion members with respect to the roll of tape in the completed carton. The tape may be dispensed by pulling it out through one of the open ends of the carton.

If desired, flaps may be provided which are integral with the carton for closing the open ends. The tape may then be dispensed through an opening provided in or adjacent one of the flaps, or by opening one of the flaps, or by any other expedient known in the art.

FIGS. 10 and 11 illustrate still another embodiment of the invention. This embodiment is designed to contain rolls of materials such as paper toweling. In order to control the movement of the roll, the trunnion structure is provided with slightly larger dimensions than the open core diameter of the roll of toweling. Slits are provided in the shoulders of the trunnion members to permit them to be bent circumferentially within the core, whereby a resilient force is provided radially outwardly against the core wall, thus eliminating any play between the trunnion and the core.

The cut and scored blank from which the carton is assembled is shown in FIG. 10 and comprises panel members 43, 44, 45, 46, and 47. A tear strip 48 defined by a pair of spaced apart substantially parallel fracture scores connects the panel member 47 with a glue flap 49. The end wall structure is comprised of inner end flaps 50, trunnion end flaps 51 and 52, outer end wall flaps 53, and inner end flaps 54.

Trunnion members 55 are hingedly connected to the trunnion end flaps 51 at score lines 55d, and trunnion members 58 are hingedly connected to the trunnion end flaps 52 at score lines 58d. The trunnion members 55 are terminated in bifurcations 56, and are provided with base slits 57 directed radially inwardly to permit the trunnion members to be inserted into an open core having a smaller diameter than the width of the trunnion member. The trunnion members 58 are terminated in a taper portion 59. A longitudinal slit 60 is provided to receive the trunnion member 55. Base slits 61 are provided to permit the trunnion member 58 to be inserted into an open core of narrower diameter than the width of the trunnion member. A push-out tab 62 is provided to facilitate the engagement of the bifurcations 56 with the slit 60.

The carton is assembled from the blank by first affixing the glue flap 49 to the edge of the panel member 43. As a result an open tubular structure is formed which may be folded flat for shipment. Prior to filling the carton, one end is assembled by engaging the trunnion member 55 with the trunnion member 58 at one end of the carton in a manner similar to that described above.

5

The inner end flaps 50 and 54 are then folded in and the outer end wall flap 53 glued in place. The roll of sheet material is then inserted into the carton, causing the trunnion structure to be compressed and the edges slightly bent circumferentially, as shown in FIG. 11. The other end of the carton is then erected and sealed in similar manner.

The carton is opened by removing the tear strip 48. The sheet material may then be removed through the exit slot formed thereby. As the sheet material is unwound, the edges of the trunnion members 55 and 58 assume a trailing direction, as shown in FIG. 11 by the numerals 55a and 58a.

The carton of the present invention has many attributes lacking in cartons of the prior art. The trunnion arrangement supports the roll of sheet material, foil, or tape and offers excellent mechanical support. It maintains its rigidity over long periods of use. It permits the roll to rotate freely, and eliminates the friction which would be caused by rubbing of the periphery of the roll on the walls of the carton during rotation.

The carton may be inexpensively manufactured since it may be cut from an integral blank. It can be readily assembled with relatively inexpensive machinery. It may be readily filled and sealed and, once opened, lends itself to convenient continued use.

Although the present invention has been shown and described in only relatively few embodiments, it is recognized that the invention is susceptible of many variations. For example, in the embodiment of FIGS. 1-5, the trunnion flap 4 may be provided on the rear wall 10 instead of on the bottom 3, and the trunnion flap 11 may then be provided on the bottom 3. The trunnion flaps may take various forms, and may even be provided by separate attachable members. However, regardless of the manner of construction of the carton, in the assembled carton each pair of cooperating trunnion flaps should be so oriented that they form a trunnion assembly comprised of two planes intersecting at a line substantially in the direction of the axis of the carton and positioned to engage the hollow core of the roll which is inserted into the carton.

It is to be understood that the invention is not limited to the exact details of construction, operation, or exact materials or embodiments shown and described, as obvious modifications and equivalents will be apparent to one skilled in the art, and the invention is therefore to be limited only by the scope of the appended claims.

I claim:

1. A dispensing carton formed of an integral blank comprising front and rear side walls, a bottom hingedly connected thereto, a cover hingedly connected to one of said side walls and having detachable means affixing said cover to the other of said side walls, a roll of sheet material having a hollow axial core in said carton, and means rotatably supporting and positioning said roll of sheet material provided at each end of said carton, said supporting and positioning means comprising only two trunnion flaps, one hingedly connected to the end of one of said side walls and the other hingedly connected to one end of said bottom, each of said trunnion flaps comprising a proximal body member and a distal trunnion member hingedly affixed thereto, a longitudinal slit being provided at the end of the trunnion member of one of said trunnion flaps forming a pair of bifurcations, and a complementary slit being provided in the other of said trunnion members ending short of the end of said trunnion flap, said trunnion members arranged when said carton is assembled to be interlocked in a position where they intersect each other at a line substantially in the direction of the axis of said carton, said trunnion members being provided with slits of limited extent colinear with the hinge lines thereof permitting the edges of said trunnion members to be bent circumferentially within the axial core of said roll of sheet material,

6

and an end flap hingedly connected to the other of said side walls folded over and adhesively secured to the body member of the outermost trunnion flap, whereby one edge of said cover may be detached and said cover opened for dispensing said sheet material.

2. A dispensing carton according to claim 1 wherein said trunnion members are tapered at their ends, whereby when the ends of said roll are engaged by said trunnion flaps said roll is lifted into a position spaced from the bottom of said carton.

3. A dispensing carton formed of an integral blank and comprising a side wall, a pair of edge members hingedly connected at the ends of said side wall, a major face member hingedly connected to a side of one of said edge members and a minor face member connected to a side of the other of said edge members, said minor face member terminating in a first trunnion flap comprised of a proximal body member hingedly connected to the end of said member and a trunnion flap hingedly connected to said body member, said major face member being cut and scored to provide a second trunnion flap positioned entirely within said major face member hingedly affixed thereto at a line substantially perpendicular to the line at which said first trunnion member is hinged comprised of a proximal body member and a distal trunnion member connected thereto at a score line, a longitudinal slit being provided at the end of the trunnion member of one of said trunnion flaps extending from the end of said trunnion to substantially its mid-point, and a complementary slit provided in the other of said trunnion flaps extending through its body portion and extending into its respective trunnion member to a point short of the end thereof, said trunnion members being engaged in interlocking relationship in the form of a pair of planes intersecting at a line substantially in the direction of the axis of said carton, and a roll of tape having a hollow axial core mounted in said carton and rotatably supported by said trunnion members.

4. A dispensing carton formed of an integral blank comprising front and rear side walls, a bottom hingedly connected thereto, a cover hingedly connected to one of said side walls and having detachable means for affixing said cover to the other of said side walls, a roll of sheet material having a hollow axial core in said carton and means rotatably supporting and positioning said roll provided at each end of said carton, said supporting and positioning means comprising only two trunnion flaps each of which is dimensioned to cover substantially the entire end of said carton, one trunnion flap hingedly connected to the end of one of said side walls and the other hingedly connected to one end of said bottom, each of said trunnion flaps comprising a proximal body member and a distal trunnion member hingedly affixed thereto, a longitudinal slit being provided at the end of the trunnion member of one of said trunnion flaps forming a pair of bifurcations, and a complementary slit being provided in the other of said trunnion members ending short of the end of said trunnion flap, said trunnion members arranged when said carton is assembled to be interlocked in a position where they intersect each other at a line substantially in the direction of the axis of said carton, and an end flap hingedly connected to the other of said side walls folded over and adhesively secured to the body member of the outermost trunnion flap, whereby one edge of said cover may be detached and said cover opened for dispensing said sheet material.

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75 THERON E. CONDON, *Primary Examiner.*