

April 19, 1966

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3,246,742

ROLL-DISPENSING CARTON

Filed Sept. 6, 1963

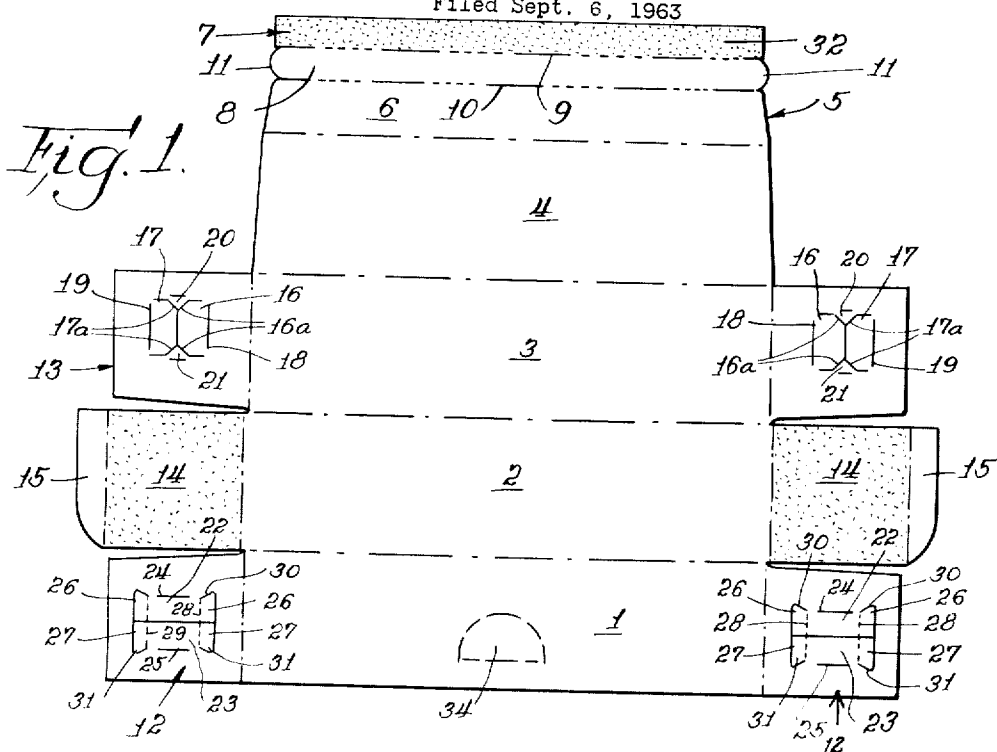
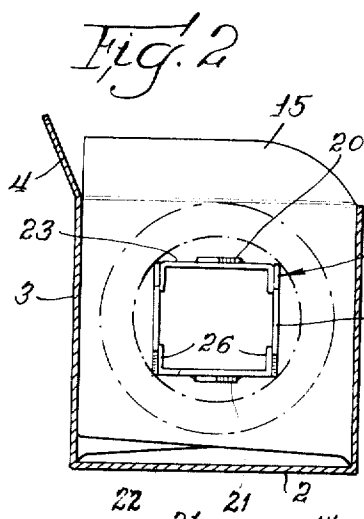
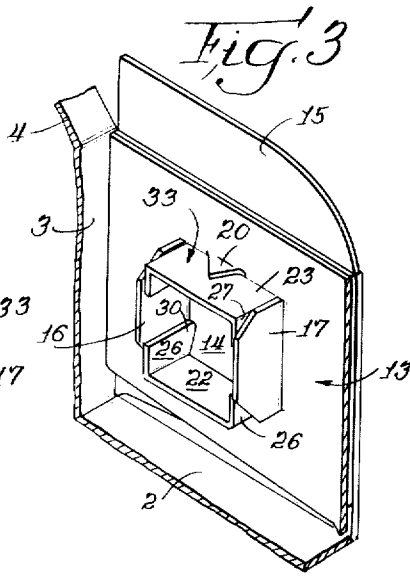
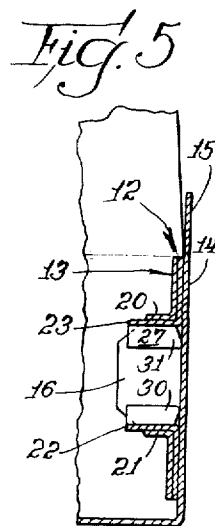
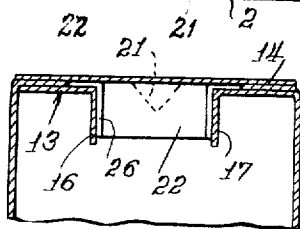


Fig. 4.

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1

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ROLL-DISPENSING CARTON

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Filed Sept. 6, 1963, Ser. No. 307,137

10 Claims. (Cl. 206—58)

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

When a roll of sheet material such as metal foil, plastic film, paper, or wax paper rests on the bottom of a dispensing carton, considerable 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, and consequently its periphery must slide over the bottom and sides of the carton. This frictional resistance retards or impedes ready withdrawal of the sheet material from the carton and may cause the sheet material to tear upon its attempted withdrawal. Moreover, when a roll of foil is so packaged that the roll rests on the bottom of the carton, there is a tendency for the roll to flatten at the boom. Such flattening interferes with the proper dispensing of the product.

It is an object of the present invention to provide a dispensing carton having means for supporting a roll of sheet material wherein the roll has a hollow axial core, such as is formed when the sheet material is wound over a tube, in such a manner that the sheet material may be readily unwound and safely dispensed with a minimum of frictional resistance. It is a further object to provide a dispensing carton having supporting and positioning means which extends into the hollow core of the roll to enable the roll to rotate freely thereabout. It is still a further object to provide such a dispensing carton wherein the positioning and supporting means is integral with the other portions of the carton. It is a still further object to provide such a dispensing carton wherein the supporting and positioning means as well as the remainder of the carton may be formed from an integral cut and scored blank. It is another object to provide such a carton which may be readily assembled, the roll inserted, and the positioning and supporting means readily positioned by a simple procedure which does not require intricate machinery. It is yet another object to provide such a dispensing carton which 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 embodiment 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 near one end of the assembled carton showing the cover open.

FIG. 3 is an enlarged fragmentary perspective view taken from the inside near one end of the carton.

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

2

FIG. 5 is a fragmentary vertical sectional view taken at one end of the carton.

Reference is now made to the accompanying drawings for a better understanding of the invention, wherein all the parts are numbered and wherein the same numbers are used to refer to corresponding parts throughout.

In a preferred form, the carton of the invention is formed from an integral blank, shown in FIG. 1, and comprises a front panel 1, a bottom panel 2, a rear panel 3, and a cover 4, hingedly connected to each other. Hinged to the cover 4 is a closure member 5 comprised of a closure flap 6, a glue strip 7 and a tear strip 8 connecting the closure flap 6 and the glue strip 7 along a pair of parallel spaced apart perforation lines 9 and 10. The tear strip is terminated by a pair of grip tabs 11.

Hinged to both ends of the front panel 1 are a pair of outer trunnion flaps 12, and hingedly connected to both ends of the rear panel 3 are a pair of inner trunnion flaps 13. A pair of outer end flaps 14, each having a dust flap 15, are affixed at the ends of the bottom panel 2.

The inner trunnion flaps 13 are cut and scored to provide a pair of inner trunnion members 16 and 17 which are hingedly connected to the inner trunnion flap 13 at score lines 18 and 19. The corners of the trunnion members 16 and 17 are beveled at 16a and 17a to provide positioning and lifting action to the roll of material, leaving triangular flaps 20 and 21 hingedly connected to the trunnion flap 13.

The outer trunnion flaps 12 are cut and scored to provide a pair of outer trunnion members 22 and 23 which are hingedly connected to the inner trunnion flap 12 at score lines 24 and 25. Each outer trunnion flap 22 and 23 has a pair of lateral supporting flaps 26 and 27, respectively, hingedly connected to their respective trunnion members at score lines 28 and 29.

In order to compensate for the thickness of the carton stock and to insure that the trunnion members 22 and 23 will be held fully extended in at least a generally parallel position, or even slightly divergent, protuberances or heels 30 and 31 are advantageously provided on the ends of the supporting flaps 26 and 27, which engage the outer end covers when the covers are in place.

The carton is assembled by first securing the glue strip 7 by means of the adhesive 32 provided thereon to the outer surface of the front panel 1. This procedure is commonly followed in the carton manufacture's plant. The partially formed carton then can be shipped to the packager in flat collapsed form. When the carton is to be filled, it is set-up to receive a roll of sheet material in the following manner. One end of the carton is erected by first closing the inner trunnion flap 13. The outer trunnion flap 12 is then closed thereover in juxtaposed position. After one end has been substantially formed, the roll product is placed into the package. A tool such as a rod, plunger, or lance is then placed against the outer trunnion members 22 and 23, and inserted therethrough into the carton. As the tool is forced inward, the outer trunnion members 22 and 23 are forced open, and they in turn cause the inner trunnion members 16 and 17 to swing open. The respective trunnion members 16, 17, 22 and 23 are so oriented that, when the carton is erected, the score lines 18 and 19 are perpendicular to the score lines 24 and 25. As a result, when the trunnion members are fully erected, they coact to form a rectangular trunnion spindle 33. The outer end flap 14 is then placed or folded over the outer trunnion flap 12 and secured thereto in juxtaposed position as by gluing, the dust flap 15 being inserted under the cover 4. The resulting trun-

nion spindle 33 is a strong, rigid supporting and positioning structure.

When the trunnion spindle 33 is in completely erected form, the supporting flaps 26 and 27 are folded-over and form a "U" structure with the trunnion members 22 and 23. The supporting flaps 26 and 27 serve to maintain the inner trunnion flaps 16 and 17 in position, and prevent the trunnion flaps 22 and 23 from moving out of engagement with the trunnion flaps 16 and 17 if they should open too far. The triangles 20 and 21 limit the swinging movement of the trunnion flaps 22 and 23. The protuberances 30 and 31 of the supporting flaps 26 and 27 abut against the outer end flap 14 and maintain the trunnion members 22 and 23 in erect position.

The fully erected trunnion spindle 33 is shown in FIGS. 2, 3, 4, and 5, and particularly well in FIG. 3.

A roll of sheet material having a hollow axial core is inserted into the open end of the carton, and extended inwardly until the erected trunnion spindle 33 enters and engages the hollow core of the roll. The trunnion flaps 12 and 13 at the opposite end of the carton are then closed in juxtaposed position and erected to form a second trunnion spindle 33 in the manner already described, and the outer cover flap 14 is then secured thereover. The resulting structure is a sealed carton containing a roll of sheet material, which roll is supported and positioned by the two trunnion spindles 33 which extend into the hollow core of the roll.

If, as is sometimes desired by packagers, the cartons are supplied by the manufacturer in the form of a flat blank with the panel 7 unglued, the erection and gluing may be carried out alternatively as follows: First, the panels 1 and 3 are folded vertically. End flaps 12 and 13 are then adhesively secured to each other, panel 12 over panel 13, with flap 14 remaining flat. The roll of sheet material is then placed into the partially erected carton from the top. The trunnion members 12 and 13 are then plunged into the hollow center core of the roll material, lifting the roll off the bottom of the carton by means of tapered ends 16a and 17a. Flaps 14 are then adhesively affixed to flap 12, closing the apertures in the ends of the carton and presenting an attractive appearance at both ends. Panels 15 are then folded over, followed by panel 4. The closure member 5 comprised of panels 6, 7, and 8 is then folded over against the front panel 1, and the glue strip 7 adhesively affixed to the front panel 1.

The carton is opened by grasping the tear strip 8 at one of the tabs 11 and detaching the tear strip. This frees the cover 4 and its end flap 6. The perforated push-out tab 34 may then be removed to leave an opening in the front wall 1 through which the sheet material may be engaged with a finger and partially unwound to expose a free end for gripping when it is desired to dispense the sheet material. The flap 6 may then be folded into the carton behind the sheet material, permitting the sheet material to be grasped and dispensed without opening the cover.

Although the present structure has been shown in only one embodiment, many variations are possible without departing from the basic concept of the invention. For example, although the arrangement shown is preferred, the positioning of the inner trunnion flap 13, the outer end flap 14 and the outer trunnion flap 12 may be altered or reversed. For example, the outer end flap 14 may be connected to the rear panel 3 or the front panel 1. Alternatively, the trunnion flap 12 may be connected to the bottom panel 2 or the rear panel 3, while the trunnion flap 13 may be alternatively connected to the bottom panel 2 or the front panel 1. Whatever arrangement is used, it is important that the trunnion members 16 and 17 and the trunnion members 22 and 23 be so oriented that, when the carton is in erected position, the score lines 18 and 19 are substantially perpendicular to the

score lines 24 and 25, so that a rectangular tubular structure will be formed when the trunnion spindle 33 is erected.

As an alternative embodiment, the present invention may be utilized in the structure of a carton having a small axial dimension, such as a carton designed for containing and dispensing a roll of narrow tape. In such a structure a single trunnion spindle structure is generally sufficient. The outer flap supporting the trunnion flaps may be designed either as an integral flap connected to one of the panel members or as a separate panel which may be ultimately glued over the trunnion flaps.

The carton of the present invention has many advantages over cartons of the prior art. The trunnion spindle supports the roll of sheet material with its periphery spaced away from the surfaces of the carton, greatly reducing frictional resistance. The trunnion structure is strong and rigid and maintains its form over extended periods of use. It may be inexpensively manufactured since it can be prepared from a cut and scored integral blank. The trunnion structure may be simply and inexpensively erected by plunging a tool simultaneously through both trunnion flaps, and subsequently gluing the outer end flap over the outer trunnion flap. Once erected, the structure becomes interlocked, and retains its form.

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 those 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 having means for rotatably supporting and positioning a roll of sheet material having a hollow axial core, said means comprising a pair of spaced apart substantially parallel trunnion members, a second pair of spaced apart substantially parallel trunnion members oriented perpendicular to said first pair and forming a rectangular tube therewith extending axially into said carton, each of said second pair of trunnion members having a lateral supporting flap on each side thereof engaging the inner surfaces of said first pair of trunnion members and retaining them in extended position, and means for retaining said second pair of trunnion members in extended position.

2. A dispensing carton according to claim 1, having an end cover adhesively affixed to said carton.

3. A dispensing carton according to claim 2, wherein said means for retaining said second pair of trunnion members in extended position comprises protuberances provided on said lateral supporting flaps adapted to engage the inner surface of said end cover.

4. A dispensing carton comprising a front panel, a bottom panel, a rear panel, and a cover hingedly connected thereto, and means for rotatably supporting and positioning a roll of sheet material having a hollow axial core, comprising an inner trunnion flap hingedly connected to an end of one of said panels cut and scored to provide a first pair of trunnion members oriented in spaced apart substantially parallel relationship, an outer trunnion flap hingedly connected to another of said panels juxtaposed over said inner trunnion flap and being cut and scored to provide a second pair of trunnion members extending through an opening in said inner trunnion flap formed by the axial extension of said first pair of trunnion members and oriented in spaced apart substantially parallel relationship substantially perpendicular to said first pair of trunnion members and cooperating therewith to form a rectangular trunnion spindle extending axially into said carton, each of said second pair of trunnion members having a pair of lateral supporting flaps positioned to engage the inner surfaces of said first pair of trunnion members and retain them in position, means for retaining said second pair of trunnion members in extended position, and an outer end flap hingedly con-

5

nected to the remaining one of said panels affixed to said outer trunnion flap.

5. A dispensing carton according to claim 4, wherein said means for retaining said second pair of trunnion members in position comprises a protuberance provided on one end of each of said lateral supporting flaps engaging the inner surface of said outer end flap.

6. A dispensing carton comprising a front panel, a bottom panel, a rear panel, and a cover hingedly connected thereto, and means for rotatably supporting and positioning a roll of sheet material having a hollow axial core, comprising an inner trunnion flap hingedly connected to an end of one of said panels cut and scored to provide a first pair of trunnion members having beveled corners and a pair of triangular projections extending from said trunnion flap, said trunnion members being oriented in spaced apart substantially parallel relationship, an outer trunnion flap hingedly connected to another of said panels juxtaposed over said inner trunnion flap and being cut and scored to provide a second pair of trunnion members extending through an opening in said inner trunnion flap formed by the axial extension of said first pair of trunnion members and oriented in spaced apart substantially parallel relationship substantially perpendicular to said first pair of trunnion members and cooperating therewith to form a rectangular trunnion spindle extending axially into said carton, each of said second pair of trunnion members having a pair of lateral supporting flaps positioned to engage the inner surfaces of said first pair of trunnion members and retain them in position, means for retaining said second pair of trunnion members in extended position, and an outer end flap hingedly connected to the remaining one of said panels adhesively affixed to said outer trunnion flap, said triangular projections contacting said second pair of trunnion members and aiding to support them in their extended position.

7. An elongate dispensing carton comprising a front panel, a bottom panel, a rear panel, and a cover hingedly connected thereto, and means for rotatably supporting and positioning a roll of sheet material having a hollow axial core positioned at each end of said carton, each of said means comprising an inner trunnion flap hingedly connected to an end of one of said panels cut and scored to provide a first pair of trunnion members oriented in spaced apart substantially parallel relationship, an outer trunnion flap hingedly connected to another of said panels juxtaposed over said inner trunnion flap and being cut and scored to provide a second pair of trunnion members extending through an opening in said inner trunnion flap formed by the axial extension of said first pair of trunnion members and oriented in spaced apart substantially parallel relationship substantially perpendicular to said first pair of trunnion members and cooperating therewith to form a rectangular trunnion spindle extending axially into said carton, each of said second pair of trunnion members having a pair of lateral supporting flaps positioned to engage the inner surfaces of said first pair of trunnion members and retain them in position, means for retaining said second pair of trunnion members in extended position, an outer end flap hingedly connected to the remaining one of said panels adhesively affixed to said outer trunnion flap, said means for retaining said second pair of trunnion members in position comprised of a protuberance provided on one end of each of said lateral supporting flaps engaging the inner surface of said outer end flap.

6

8. A dispensing carton formed from an integral cut and scored blank comprising a front panel, a bottom panel, a rear panel, and a cover hingedly connected thereto, and means for rotatably supporting and positioning a roll of sheet material having a hollow axial core, comprising an inner trunnion flap hingedly connected to an end of one of said panels cut and scored to provide a first pair of trunnion members oriented in spaced apart substantially parallel relationship, an outer trunnion flap hingedly connected to another of said panels juxtaposed over said inner trunnion flap and being cut and scored to provide a second pair of trunnion members extending through an opening in said inner trunnion flap formed by the axial extension of said first pair of trunnion members and oriented in spaced apart substantially parallel relationship substantially perpendicular to said first pair of trunnion members and cooperating therewith to form a rectangular trunnion spindle extending axially into said carton, each of said second pair of trunnion members having a pair of lateral supporting flaps positioned to engage the inner surfaces of said first pair of trunnion members and retain them in position, means for retaining said second pair of trunnion members in extended position, and an outer end flap hingedly connected to the remaining one of said panels adhesively affixed to said outer trunnion flap.

9. A dispensing carton according to claim 8, wherein said means for retaining said second pair of trunnion members in position comprises a protuberance provided on one end of each of said lateral supporting flaps engaging the inner surface of said outer end flap.

10. An integral blank for constructing a dispensing carton cut and scored to provide a front panel, a bottom panel, a rear panel, and a cover, an inner trunnion flap hingedly connected to one of said panels cut and scored to provide a first pair of trunnion members adapted to be oriented in spaced apart substantially parallel relationship, an outer trunnion flap hingedly connected to another of said panels adapted to be juxtaposed over said inner trunnion flap and being cut and scored to provide a second pair of trunnion members adapted to be assembled in spaced apart substantially parallel relationship perpendicular to said first pair of trunnion members when said carton is assembled, and cooperating to form a rectangular trunnion spindle with said first pair of trunnion members extending axially into said carton, each of said second pair of trunnion members having a pair of lateral supporting flaps adapted to engage the inner surfaces of said first pair of trunnion members when said carton is in erected condition and to support them in position, an outer end flap hingedly connected to the remaining of said panels and adapted to be folded in juxtaposed position over said outer trunnion flap and to be adhesively secured thereto, said lateral supporting flaps being provided with protuberances at one end of each flap adapted to engage said outer end flap and maintain said second pair of trunnion members in position.

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