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S. CONESCU
BOX CONSTRUCTION

3,091,381

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2 Sheets-Sheet 2

FIG. 4

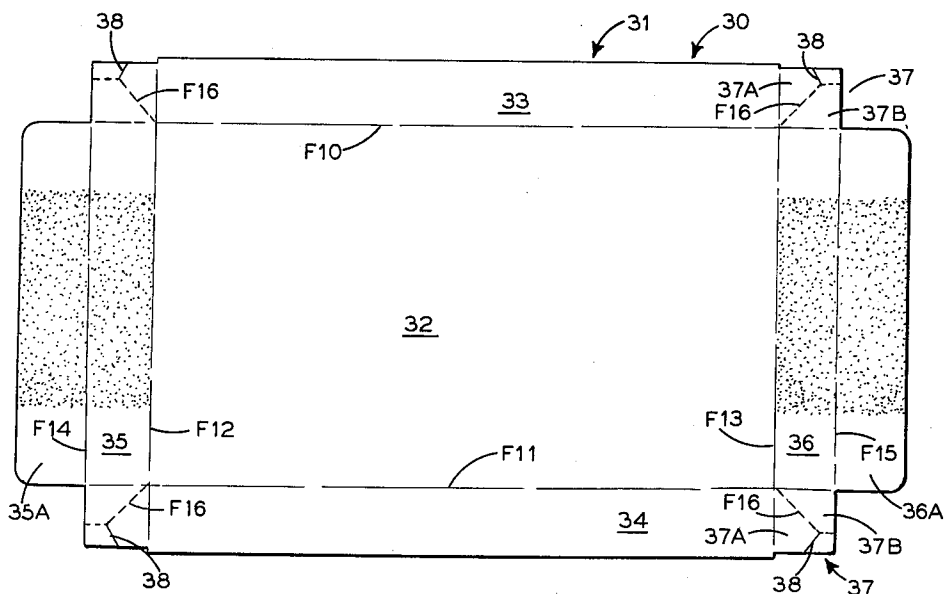


FIG. 6

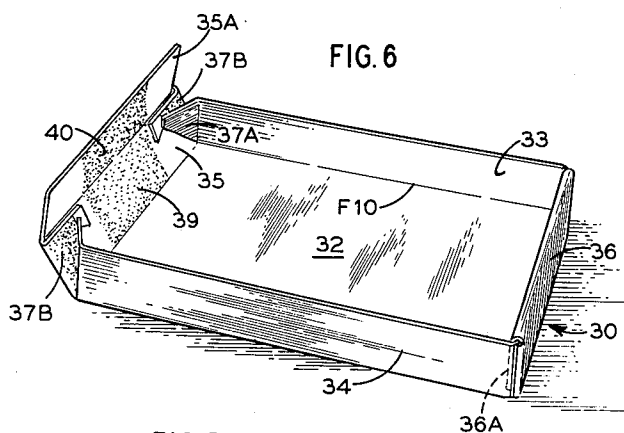
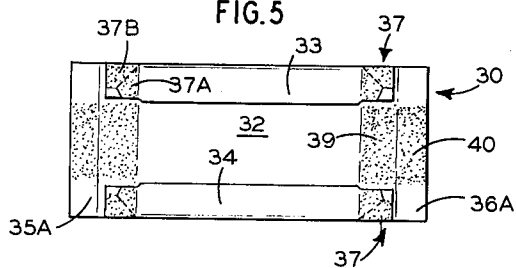


FIG. 5



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3,091,381

BOX CONSTRUCTION

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This invention relates in general to a box construction, and more particularly to an open end box and top therefor, each of which is formed of a single blank of sheet material constructed and arranged to facilitate final assembly of the box and top from an intermediate preformed and prefolded shape.

Outer cartons and boxes employed for shipping and storing a plurality of articles are generally shipped or sold to a customer, such as a manufacturer or retailer of the articles to be packed therein, in their flat, knock-down, or disassembled form. In such instances, the user was obligated to assemble the box or carton before the packing of his merchandise therein. Heretofore, such outer cartons and boxes consisted of relatively complex shapes and forms that were relatively difficult to construct and/or to assemble. Further, the assembly of these known constructions in many instances constituted relatively tedious and time consuming task.

Therefore an object of this invention is to provide an open end outer box or carton construction formed of a single blank of sheet material that is relatively simple in form and easy to assemble.

Another object of the invention is to provide a top for such box which is substantially similar in form and construction.

Still another object is to provide an outer box or carton construction and top therefor which can be shipped to a user in partial assembled form so that final assembly may be quickly and easily completed with a minimum of effort.

Still another object is to provide a box construction specifically constructed and arranged from a single blank of sheet material having portions thereof coated with a layer of pressure contact bonding material so that in partial assembled form the boxes may be stacked in flat form one on the other without adhering to one another, and which when assembled the coated portions of the respective boxes are disposed opposite one another for bonding upon the application of pressure for securing the box in final assembled form.

Other features and advantages will become readily apparent when considered in view of the drawings and description in which:

FIG. 1 illustrates the outer side of a preformed blank of sheet material from which the body of the box or carton is formed.

FIG. 2 illustrates the blank of FIG. 1 in its intermediate stage as the carton is generally sold to a user.

FIG. 3 illustrates a perspective view of the assembled carton with one end thereof shown in final assembled form, and the other end thereof shown in partial assembled form.

FIG. 4 illustrates the inner surface or side of a preformed blank from which the cover of the box is formed.

FIG. 5 illustrates the blank of FIG. 4 in its intermediate partially assembled stage.

FIG. 6 is a perspective view of the cover shown with one end in assembled form and the other end approaching its assembled state.

Referring to the drawings, there is shown in FIG. 1 a blank 10 of sheet material, such as cardboard or the like, from which an outer carton or box is formed. It includes a center or bottom panel 11 having its periphery

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defined by fold-lines F1, F2, F3 and F4. Accordingly, a pair of opposed side panels 12 and 13 are connected to opposed side portions of the center panel 11 along fold lines F1 and F2m respectively. As shown, the side panels 12, 13 and center panel 11 are substantially co-extensive in length. Connected to the other opposed ends of the center panel 11 along fold lines F3 and F4 are end panels 14 and 15, respectively. End flaps 14A and 15A are connected to the outer ends of the end panels 14 and 15. Accordingly, end flaps 14A and 15A are adapted to be reversely folded approximately 180° about their respective fold lines F5, F6, respectively.

Connected between adjacent side panels 12, 13 and end panels 14, 15 are the corner flaps 16, 17, respectively. As shown, each corner flap 16, 17 is substantially L shaped and has a diagonal fold line F7 dividing the respective corner flaps 16, 17 into a corner flap side portion 16A or 17A and a corner flap end portion 16B or 17B.

The side portions 16A, 17A of each corner flap 16, 17 connect to the ends of adjacent side panels 12, 13, respectively, along fold lines F8 and the corner flap end portions 16B, 17B connect to their respective end panels 14, 15 along fold line F9.

According to this invention the outer marginal portions 18 and 19 of corner flaps 16 are coated on back or outer side of the sheet material with a layer of bonding cement. Preferably, a pressure contact bonding cement is used, i.e. a cement that will adhere only to a surface which is coated with a similar bond upon the application of pressure thereon. In the illustrated embodiment the other corner flaps 17 are coated at an intermediate portion at 20 and 21 with similar cement. If desired all the cover flaps may be similarly coated.

The center portion of the end panels 14, 15 and their connected end flaps 14A, 15A are likewise coated with a pressure contact cement as indicated at 22, 23, respectively. As noted in FIG. 1, the end panels 14, 15 and connected end flaps 14A, 15A are coated on the side of the blank which forms the inner surface of the box.

In accordance with this invention the preformed blank 10 of FIG. 1 is preferably sold and shipped to a customer in a knock-down intermediate stage, as shown in FIG. 2. This intermediate stage is attained simply by folding one side panel, e.g. panel 13, and its connected corner flaps 17 along fold line F2 until it overlies the inner surface of the center panel 11. The other side panel 12 and connected corner flaps 16 are then folded along its fold line to overlie the side panel 13. In this form or intermediate stage all of the coated areas 18, 19, 20, 21, 22, and 23 are disposed on the same side of the carton. Thus, a plurality of such folded cartons may be stacked one on the other without any danger of having one adhere to another as long as they are stacked front to back.

To finally assemble the carton or box from the intermediate stage of FIG. 2, one need only to raise the side panels 12 and 13 to a position normal to the center or bottom panel 11. In this position the corner flaps 16, 17 adjacent each side panel 12, 13 are likewise normal to the bottom or center panel 11. With the box in this position the end panels 14, 15 are folded upwardly along their fold lines F3, F4 toward each other. This will cause the corner flaps 16, 17 to fold inwardly along their respective score line F7 so that the corner end flap portions 16B, 17B of each corner will overlie the adjacent corner side flap portions 16A, 17A, as will be apparent in FIG. 3. In this position portions of the corner side and end portions, coated with pressure contact cement,

will be placed opposed to each other to bond one to the other.

With the corner flap portions 16A, 16B and 17A, 17B folded in overlying position, each end flap 14A, 15A is reversely folded along respective fold lines F5, F6 180° so that each end flap 14A, 15A will overlap the corner side portions connected to each side panel 12, 13. In this position the end flaps 14A, 15A are bonded to the respective end panels 14, 15, since the coated portions thereof 22, 23 are disposed in contacting relationship. Thus an open end box is firmly secured in assembled position, with a minimum of effort.

FIGS. 4, 5 and 6 illustrate a top 30 for the box herein described. The top 30 is similar in structure and operation, except for a slight corner flap modification.

As seen in FIG. 4, the top 30 is formed of a single precut blank of sheet material 31, such as cardboard or the like. It comprises a center or top panel 32, connected side panels 33, 34 and end panels 35, 36 foldable about respective fold lines F10, F11, F12 and F13. Connected to each end panel 35, 36 is an end flap 35A, 36A which is foldable relative its respective end panel 35, 36 about fold lines F14, F15.

Connected between each adjacent side and end panels is a corner flap 37. As shown, each corner flap 37 has a diagonal fold line F16, preferably scored to facilitate folding. It will be noted that the fold line F16 extends from the corner of the center panel 32 to a point spaced from the outer edge of the corner flap 17. A die cut 38 connects to the other end of the diagonal fold line F16 to form an acute angle therebetween. Thus the diagonal fold line F16 and die cut 38 divide each corner flap 37 into a side corner flap 37A and an end corner flap 37B.

As shown in FIGS. 5 and 6, the corner flaps 37 are each coated with a layer of pressure contact cement on the outer side of the blank. The end panels 35, 36 and connected end flaps 35A, 36A have a central coated portion of cement as shown at 39 and 40.

In the intermediate stage of the top construction, the respective side panels 33, 34 and connected corner flaps 37 are folded about their respective fold lines F10, F11 to overlie the center panel 32. In this form the coated surfaces of 37A, 37B, 39 and 40 are on the same side. Thus the covers in their knock-down form may be stacked for shipment, front to back, one on the other, without adhering together.

To form the assembled box, the opposed side panels 33, 34 are folded normal to the center or top panel 32. The end panels 35 and 36 are then folded in the same direction to normal position relative to the top panel 32 and side panels 33, 34.

In doing so, the respective corner flaps 37 are folded along their diagonal fold line F16 as seen in FIG. 6. Thus the coated areas of the corner flap portions 37A, 37B are placed in opposed contacting relationship, and they become readily bonded when pressure is applied thereto. The end flaps 35A, 36A are then folded inwardly of the box, as seen in FIG. 6, and they in turn become bonded to the end panels 35, 36, respectively, upon the application of pressure. Thus, the box and top therefore can be readily assembled from their respective intermediate stage quickly and easily, and with a minimum of effort.

While the instant invention has been disclosed with reference to a particular method and a particular embodiment for practicing the same, it is to be appreciated that the invention is not to be taken as limited to all of the details thereof as modifications and variations thereof may be made without departing from the spirit or scope of the invention.

What is claimed is:

1. An open end box construction comprising a blank of sheet material forming a center panel having opposed side and end panels connected thereto along fold lines,

corner flaps connected along fold lines between adjacent side and end panels, each of said corner flaps having a diagonal fold line extending from the juncture of the connected side and end panel, an end flap connected along a fold line to each end panel, said end flaps each being adapted to be reversely bent inwardly of said box in the folded position of said blank, and said side panels and their connected end flaps having a central portion thereof coated on the inner side of said blank with a pressure contact cement so that in the folded position of said blank the coated portion of each end panel and connected flap adhere to one another upon the application of pressure thereon, each of said corner flaps are adapted to fold inwardly of said box in the folded position of said blank about its respective diagonal fold line, and each of said corner flaps on the outer side of said blank being coated with a layer of pressure contact cement so that in the folded position of said blank the coated portion of each flap is disposed in position to adhere to one another.

2. An open top box construction comprising a blank of sheet material forming a bottom panel having opposed side and end panels connected thereto along fold lines, L-shaped corner flaps connected between adjacent side and end panels along fold lines, each of said corner flaps having a diagonal fold line extending from the juncture of the adjacent side and end panel connected thereto to divide said corner flaps into end corner leg portion and a side corner leg portion, said end leg and side leg flap portions of each corner flap having opposed portions thereof coated with a layer of contact cement on the outer surface of said blank so that in the folded position of said blank the opposed coated portions of said corner flaps adhere to one another upon the application of pressure, and an end flap connected along a fold line to each of said end panels, said end flap being adapted to be reversely bent inwardly of said box along its fold line in the folded position of said blank, and said end panels and their respective end flaps being coated with cement on the inner side of said blank so that in the folded position of said blank the coated portions of said end panels and connected end flap adhere to one another.

3. A box construction formed as an intermediate article of manufacture comprising a blank of sheet material having a center panel and connected opposed end panels, a side panel connected to each side of said bottom panel, a corner flap connected along fold lines to adjacent side and end panels, said corner flaps being foldable with said side panels so that in the intermediate article one side panel and its connected corner flap is folded along its fold line to overlie the bottom panel and connected end panels, and the other side panel and connected corner flap folded along its respective fold line to overlie said first mentioned side panel and connected corner flap, wherein the corner flaps are coated with a layer of pressure contact cement on the outer surface of said blank, and the end panels and connected flaps are coated with a layer of pressure contact cement on the inner side of said blank.

4. A top for an open end box construction comprising a blank of sheet material defining a top panel having opposed depending side panels and end panels connected thereto along fold lines, corner flaps connected between each adjacent side panel and end panel along fold lines, each of said corner flaps having a diagonal score line extending from the juncture of the connected side panel and end panel to a point spaced from the edge of said corner flap to define an end corner flap portion and a side corner flap portion, a die cut extending from said edge to said diagonal score line, said end corner flap and side corner flap portions of each corner flap having opposed portions coated with a layer of contact cement on the same side of said blank so that in the folded position of said blank the opposed coated portion of said end corner and side corner flap portions adhere to one another upon the application of pressure, and an end flap connected

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along a fold line to each of said end panels, said end flaps each being adapted to be reversely bent inwardly of said box along its fold line in the folded position of said blank, and said side panels and their respective end flaps being coated with a layer of contact cement on the inner surface of said blank so that in the folded position of said blank the coated portions of said end panels and connected end flap adhere to one another.

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