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PACKAGING MACHINE AND METHOD

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3 Claims. (Cl. 33—32)

This invention relates to a packaging machine and method and more particularly to a machine and method for applying a wrap-around type of blank to a group of articles to be packaged wherein the carrier blank comprises top and side panels as well as end panels foldably joined to the end edges of the top panels, anchor panels foldably joined to the end edges of the side panels and adapted to fold flat against the inner surfaces of the side walls and in which webb structure is interconnected between the ends of the end panels and the adjacent ends of the anchor panels.

Patent application Serial No. 173,581, filed February 15, 1962 now Patent No. 3,127,720 discloses and claims a machine and method for applying a wrap-around type of wrapper blank having end panels and wherein the articles to be packaged are held only temporarily by means ofAdvantages of the invention not necessarily limited to a wrapper of the type referred to above but which is specially adapted for packaging cans having chimes at the ends thereof.

Where the articles to be packaged are chime cans and where the wrapper is provided with end panels, it is necessary to secure the end panels in a very snug relation about the ends of the articles to be packaged. Furthermore, in order to provide a machine and method which is commercially feasible, the snugly secured end panels must be moved into proper position with respect to the articles to be packaged at a high rate of speed.

A principal object of the invention is to provide an improved machine and method for use in conjunction with a wrap-around type of blank having end panels at each end and wherein the machine, method and wrapper are specially adapted, though not necessarily limited, to packaging cans having chimes ended.

The invention in one form as applied to a high speed packaging machine is for the purpose of adapting such a machine to a wrap-around wrapper blanket having an end panel at each end and comprises an endless tucking conveyor having a tucking roach disposed immediately above the path of movement of the groups of articles to be packaged and movable in transverse relation thereto and a cam surface is disposed for engagement by the tucking supports to impart transverse movement thereto. Tucking paws are pivotally mounted on each tucking support and cam levers are pivotally mounted on the supports and interconnected with the tucking paws by suitable gear means. A fixed cam surface is disposed to be engaged by the cam levers so as to swing the tucking paws into engagement with the wrapper and thereby to impart downward movement thereto simultaneously with the transverse movement of the wrapper and parts associated therewith. By means of this end panel at each end of the wrapper blank is securely and snugly folded about the ends of the packaged items such, for example, as chime cans. According to a feature of the invention the tucking paws move at a different rate of speed from the rate of movement of the cam levers due to the gear ratio of the gears interconnecting these elements. According to another feature of the invention biasing means are provided for returning the tucking paws to their normal positions following completion of a carton forming operation.

For a better understanding of the invention, reference may be had to the following detailed description taken in conjunction with the accompanying drawings in which FIG. 1 is an elevation view which in schematic fashion shows the essential elements of a high-speed machine of the type to which the invention is applicable; FIG. 2 is a plan view of a wrapper blank from which the package is formed and to which this invention is particularly applicable; FIG. 3 is a perspective view of a package formed from the blank depicted in FIG. 2; FIG. 4 is a perspective view of a portion of the machine depicted in FIG. 1 and depicting the essential features of this invention; FIG. 5 is a plan view of a portion of the structure shown in FIGS. 1 and 4; and in which FIG. 6 is an enlarged detailed view of a tucking paw together with its associated gear means, support structure, and cam lever.

With reference to FIG. 1, the numeral 1 generally designates the frame of the machine. A schematically represented hopper 2 is mounted on the frame 1 and a plurality of wrapper blanks generally designated by the numeral 3 are stacked on the hopper 2. Suitable means are provided for withdrawing the blanks from the hopper 3 such, for example as the means disclosed in U.S. Patent 2,817,520 issued December 24, 1957 on an application filed by Hermond G. Gentry and owned by the assignee of this invention.

Articles to be packaged such as the chime cans schematically depicted generally by the numeral 4 are fed in from the right and travel toward the left as indicated by arrow 5. Preferably, the cans are separated into groups of two rows of three cans each by suitable means and the wrapper for each group is then applied. Such a wrapper is of the general type disclosed in U.S. Patent 2,786,572 issued March 26, 1957 on an application filed by Hermond G. Gentry and owned by the assignee of this invention. These wrappers are formed about each package group in a manner such as is disclosed and claimed for example in U.S. Patent 2,751,730, filed June 26, 1956 on an application filed by Hermond G. Gentry and owned by the assignee of this invention. The completed packages are designated in FIG. 1 by the numeral 6. The numeral 6A in FIG. 1 designates a package in which the wrapper blanket is but partially folded about a particular package group while the designation 6B is applied to a package and wrapper blank at a subsequent stage of the package forming operation. The blanks 3 are advanced toward the left on a pair of conveyor chains only one of which appears in FIG. 1 and which is designated by the numeral 7. The blanks are moved toward the left due to engagement with push tabs 8 which are secured to and movable with the chains 7.

A horizontally disposed boom designated generally by the numeral 9 is provided. Boom 9 comprises an endless conveyor 10 on which closely spaced segments are mounted and which hold the wrapper blanks securely atop each package group. Conveyor 10 rides on pulleys 11 and 12 which are respectively mounted on shafts 13 and 14, the shafts being securely affixed to the frame of the machine in a manner not clearly shown in the drawings.

The structure of this invention is depicted generally in FIG. 1 and comprises an endless tucking conveyor designated by the numeral 15 which is mounted on sprockets 16 and 17, one of which is a driven element and the other of which is an idler element. Sprocket 16 is mounted on shaft 18 while sprocket 17 is mounted on shaft 19.

Generally speaking, suitable tucking paws are mounted on tucking conveyor 15 and are arranged so as to slide...
transversely with respect thereto and so as to swing outward the articles to be packaged and thereby to cause the end panels and associated structure to assume a vertical position of snug relationship with the articles being packaged.

With regard to the structure of the carton to which the machine and method of this invention are particularly applicable, reference may be had to copending patent application Serial No. 221,565, filed September 5, 1962 by Homer W. Forrer, now Patent No. 3,203,584, and assigned to the assignee of this invention. For the sake of completeness, a brief description of the carton is set forth herein. As shown in FIGS. 2 and 3, the wrapper comprises a top panel 20 which is foldably joined to side panels 21 and 22 along fold lines 23 and 24, respectively. Bottom lap panels 25 and 26 are foldably joined to side panels 21 and 22, respectively, along fold lines 27 and 28. When folded underneath the article group, lap panels 25 and 26 are secured together by locking tabs 29 and 30 which are driven through the openings defined by retaining tabs 31 and 32. Before the locking operation is performed, the lap panels 25 and 26 are drawn tightly about the article group by machine elements which enter tightening apertures 33 and 34 in panel 25 and tightening apertures 35 and 36 in panel 26. After the wrapper is tightened, locking tabs 29 and 30 are driven by machine elements through the openings defined by retaining tabs 31 and 32. When the package is formed, the keel panel 37 is disposed between the two rows of packaged items designated by the letter C in FIG. 3.

Finger gripping apertures 38 and 39 are formed in top panel 20 and suitable can separating tabs 40, 41, and 42 are struck out of top panel 20 and folded downwardly between the cans in each row along their fold lines 43, 44, and 45. Foldably joined to the ends of the top panel 20 and end panel 46 is end panel 47. After the wrapper is joined along fold line 48 to the top panel 20 while end panel 47 is foldably joined along fold line 49 to the top panel 20. Preferably, can chime receiving slots 50 and 51 are formed along the fold line 48 while similar slots 52 and 53 are formed along the fold line 49.

Anchor panels 54 and 55 are foldably joined to the end edges 56 and 57 of side wall 21. Similarly anchor panels 58 and 59 are foldably joined to the end edges 60 and 61 of the side wall 22. If desired the tearout tab 62 and suitable tear opening slits 63 may be formed in known manner adjacent the fold line 24 and in the side wall 22.

Reinforcing panel 64 is foldably joined along fold line 65 to the end of panel 25 and a complementary retaining tab 66 is formed therein which coincides with small corner retaining tab 67 when panel 64 is folded flat against the inner surface of panel 25. In like fashion, reinforcing panel 68 is foldably joined along fold line 69 to the other end of panel 25 and a complementary retaining tab 70 coincides with corner retaining tab 71 when panel 68 is folded flat against the inside of panel 25. Disposed at the other end of the carton are similar reinforcing flaps 72 and 73 which are foldably joined to the end 74 and 75 of bottom lap panel 26. Complementary locking tabs 76 and 77 coincide with the associated locking tabs 78 and 79, respectively, when the reinforcing strips 72 and 73 are folded flat against the inside surface of bottom lap panel 26. Interconnecting the ends of end panels 46 and 47 and the adjacent ends of the adjacent anchor panels are the web structures 80, 81, 82 and 83. These webs are all identical in structure. Web 83 for example is provided with a fold line which is in reality a continuation of fold line 23. In addition, fold lines 84 and 85 are provided and define junctions between the web structure 80 and the adjacent anchor panel 54 and the adjacent end of end panel 46.

When the carrier is in setup condition, the end panels are substantially vertical as shown in FIG. 3 and each web structure closely engages the periphery of the adjacent part of the adjacent can. For a more detailed discussion of the relationship of the end panels to the packaged items and the function of the web structure, reference may be had to the aforementioned patent application Serial No. 221,565.

According to the present invention, the machine and method illustrated in FIGS. 1, 4, 5, and 6 are utilized to cause the end panels 46 and 47 of the carton shown in FIGS. 2 and 3 to assume the vertical position while the wrapper is being formed about a package group as disclosed and claimed in the aforementioned Patent 2,751,730. In FIG. 4, the lower portions of the tucking conveyor elements 15A and 15B move toward the left as indicated by the arrow 86 and such portions of the conveyor are referred to herein as the tucking reach of the conveyor. Similarly, the upper portions of the tucking conveyor 15 move toward the right as indicated by the arrow 87. Of course, motion of each article group is toward the left as indicated by the arrow 5 in FIG. 4. In FIG. 4, only three blanks are depicted and are designated in the drawing at B1, B2 and B3. It will be understood that other positions of the blank are not depicted for the sake of simplicity. In like fashion, it will be understood that a number of tucking conveyor elements and supporting structures are affixed to the tucking conveyor 15. However, for the sake of simplicity only two tucking paws and their associated apparatus are depicted. Similarly, it will be understood that each tucking support is preferably mounted and hence requires a pair of tucking conveyor elements which in FIG. 4 are designated by the numerals 15A and 15B. The structure depicted in FIG. 4 is for folding the webs at one side of the carton only such for example as the webs 81 and 83. Similar structure (not shown) to that depicted in FIG. 4 comprising the two tucking conveyor elements is on the near side of the machine and functions to fold the webs 80 and 82.

With reference to FIG. 4 the main conveyor belt 88 is supported by drum pulley 89 which is rotatable on shaft 90. A similar drum and shaft, of course, is disposed at the left hand end of the conveyor 89 and one drum is a driven member and the other an idler element. As depicted in FIG. 4 the upper reach of the conveyor moves toward the left as is indicated by the arrow 91 and bears the cans designated by the letter C. As is shown in FIG. 4, a blank such as is designated at B1 is moved up to a predetermined position by the hooks 92 and 93 are mounted on chains 78. Thereafter, the rubber feet 92 mounted on boom 9 engage the top panel 20 of the blank and hold the blank securely atop its associated package group. When a particular group of articles to be packaged and its associated blank move underneath the tucking conveyor 15 the folding operation is effected as depicted at B2 in FIG. 4.

The structure for effecting snug folding of the webs and end panels is depicted in FIG. 4 and comprises a pair of tucking supports 93 and 94. One support and associated structure is shown in enlarged form in FIG. 6. Support 93 is transversely slidable on a pair of rods 95 and 96 which are secured at their ends to conveyor elements 15A and 15B. In like fashion, tucking support 94 is slidably mounted on rods 97 and 98 which are secured at their ends to the conveyor elements 15A and 15B.

For the purpose of imparting transverse movement to tucking supports 93 and 94, a cam surface 99 is securely affixed in position as shown in FIGS. 4, 5 and 7. Thus, when the supports 93 and 94 come into engagement with the cam surface 99, these elements move inwardly and toward the left in their direction of travel to the left as indicated by the arrow 99. This movement toward the left, of course, is accompanied by inward movement to the right of the corresponding tucking supports which are on the other or near side of the carton and which are not shown in FIG. 4.
Cam support 94 as best shown in FIG. 6 is provided with a tucking pawl 100 which is pivotally mounted on shaft pin 101 secured to the frame of tucking support 94. Affixed to and movable with the pin 101 is a pinion 102 gear segment 102 which segment in turn is affixed to the shaft 103 of cam lever 104. A biasing spring 105 is secured at one end 106 to tucking support 94 and at the other end 107 to gear segment 102. Biasing element 105 as depicted in FIG. 6 imparts clockwise movement to gear segment 102 and in turn imparts counterclockwise movement to pinion 102 and tucking pawl 100.

Mounted to the end of cam lever 104 is a cam roller 108. Cam roller 108 is arranged to engage and ride on fixed cam surface 109. From FIG. 4 it is apparent that cam lever 104 of tucking support 94 is inclined toward the left as viewed in that figure.

Tucking support 95 is similar to tucking support 94 except that its associated cam lever 104A is inclined toward the right as viewed in FIG. 4. Thus, as cam lever 104A moves from right to left and engages its associated cam surface 110, clockwise movement is imparted thereto as viewed in FIG. 4. Such movement imparted clockwise movement to tucking pawl 111 while tucking pawl 100 swings in a clockwise direction as viewed in FIG. 4 about its pin 101 due to the fact that cam lever 104 is inclined to the left.

From the description above it is apparent that tucking paws 111 and 100 engage the web structure 81 and 83 respectively as the operation progresses from right to left and cause the web structure to move longitudinally inward alongside the adjacent articles to be packaged and designated by the letter C. Simultaneously, with the rotary motion of tucking paws 111 and 100, tucking supports 95 and 94 move transversely inward toward the package group due to engagement with cam surface 99 so that the tucking paws 111 and 100 ride across the web structures 81 and 83 and crease the web structures securely alongside the cans to be packaged. Simultaneously, with the transverse movement of tucking supports 93 and 94 and the swinging movement of tucking paws 111 and 100 the anchor panels 54 and 58 are folded along the inner surfaces of the side walls 21 and 22 while the reinforcing panels 64 and 72 are similarly folded. Simultaneously, with the folding of the web and end panels as well as the anchor and reinforcing panels, suitable guides designated 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, and 123 engage the side walls 21 and 22, respectively, and due to their particular shape and orientation urge the side walls downwardly alongside the articles to be packaged to the position designated in FIG. 4 at 83.

After the packaging operation progresses to the point designated at 83, the lap panels 25 and 26 are folded underneath the article group by guides depicted in FIG. 1, for example at 114. Thereafter, the carton is tightened and locked by machine elements as is well known. It will be understood, of course, that the tucking pawl 111 operates simultaneously and in virtual synchrony with the tucking pawl 118 which pawl cooperates with the web structure 82. In like fashion, tucking pawl 116 operates in synchrony with tucking pawl 100, it being obvious that tucking pawl 116 engages the web structure 80.

Upon completion of a package the tucking supports 94 and 95 move to the right as viewed in FIG. 4 along the upper reaches of conveyor elements 15A and 15B. During such movement the tucking supports engage cam 117 and are moved transversely thereby outwardly or toward the left as they proceed toward the right as viewed in FIG. 4. The tucking supports are then ready to begin a succeeding cycle.

From the above description it will be understood that by the invention the combination transverse and swinging motion of the tucking paws imports a secure cam gripping action to the end panels 46 and 47 and that a secure and sturdy package results.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A machine for packaging a plurality of articles in a wrap-around type of wrapper, said machine comprising means for advancing a group of articles along a predetermined path, means for advancing a wrapper blank along said path and immediately above a group of articles to be packaged, a tucking conveyor having a tucking reach disposed immediately above said path and movable in synchronism with the group of articles and wrapper, a tucking support mounted on said conveyor, a tucking pawl pivotally mounted on said tucking support, a cam lever pivotally mounted on said support, gear means operably interconnecting said tucking pawl and cam lever, and a fixed cam surface disposed to be engaged by said cam lever so as to swing said tucking pawl into engagement with a part of the wrapper and thereby to fold said part of the wrapper downwardly and generally toward the group of articles.

2. A machine for packaging a plurality of articles in a wrap-around type of wrapper, said machine comprising means for advancing a group of articles along a predetermined path, means for advancing a wrapper blank along said path and immediately above a group of articles to be packaged, a tucking conveyor having a tucking reach disposed immediately above said path and movable in a direction transverse to the path of movement of said tucking reach, a fixed cam surface disposed for engagement by said tucking support for imparting transverse movement thereto, a tucking pawl pivotally mounted on said tucking support, and means for imparting swinging movement to said tucking pawl so as to swing said tucking pawl into engagement with a part of the wrapper and thereby to fold said part of the wrapper downwardly and generally toward the group of articles.

3. A machine for packaging a plurality of articles in a wrap-around type of wrapper, said machine comprising means for advancing a group of articles along a predetermined path, means for advancing a wrapper blank along said path and immediately above a group of articles to be packaged, a tucking conveyor having a tucking reach disposed immediately above said path and movable in synchronism with the group of articles and wrapper, a tucking support slidably mounted on said conveyor and movable in a direction transverse to the path of movement of said tucking reach, a fixed cam surface disposed for engagement by said tucking support for imparting transverse movement thereto, a tucking pawl pivotally mounted on said tucking support, and means for imparting swinging movement to said tucking pawl so as to swing said tucking pawl into engagement with a part of the wrapper and thereby to fold said part of the wrapper downwardly and generally toward the group of articles.

4. A machine for packaging a plurality of similarly shaped articles in a wrap-around type of wrapper blank having a top panel to the ends of which a pair of side walls are foldably joined respectively and including a collapsible web structure interconnecting each anchor panel and a different end of one of the end panels, said machine comprising means for advancing the wrapper blank along a predetermined path in conjunction with a group of articles to be packaged therein, the wrapper blank being disposed with one end panel in a leading relation to the group of articles and with the other end panel in a trailing relation thereto and being above the group of articles, a tucking conveyor having a tucking
reach disposed immediately above said path and movable in synchronism with the group of articles and wrapper, a pair of tucking supports mounted in spaced relation on said conveyor, a tucking pawl pivotally mounted on each tucking support, a cam lever pivotally mounted on each support, gear means operably interconnecting each cam lever and the associated tucking pawl, and a fixed cam surface disposed to be engaged by each of said cam levers so as to swing said tucking paws into engagement with leading and trailing parts of the wrapper blank and thereby to fold said parts downwardly and in the general direction of the group of articles.

5. A machine according to claim 4 wherein said cam levers extend in generally opposite directions from their associated tucking supports so as to impart swinging movement in opposite directions to said tucking paws.

6. A machine for packaging a plurality of similarly shaped articles in a wrap-around type of wrapper blank having a top panel to the ends of which a pair of end panels are foldably joined respectively and having a pair of side walls to the ends of each of which a pair of anchor panels are foldably joined respectively and including a collapsible web structure interconnecting each anchor panel and a different end of one of the end panels, said machine comprising means for advancing the wrapper blank along a predetermined path in conjunction with a group of articles to be packaged therein, the wrapper blank being disposed with one end panel in a leading relation to the group of articles and with the other end panel in a trailing relation thereto and being above the group of articles, a tucking conveyor having a tucking reach disposed immediately above said path and movable in synchronism with the group of articles and wrapper, a tucking support mounted on said conveyor, a tucking pawl pivotally mounted on said tucking support, a cam lever pivotally mounted on said cam lever and a fixed cam surface disposed to be engaged by each of said cam levers so as to swing said tucking paws into engagement with leading and trailing parts of the wrapper blank and thereby to fold said parts downwardly and in the general direction of the group of articles.

7. A machine for packaging a plurality of similarly shaped articles in a wrap-around type of wrapper blank having a top panel to the ends of which a pair of end panels are foldably joined respectively and having a pair of side walls to the ends of each of which a pair of anchor panels are foldably joined respectively and including a collapsible web structure interconnecting each anchor panel and a different end of one of the end panels, said machine comprising means for advancing the wrapper blank along a predetermined path in conjunction with a group of articles to be packaged therein, the wrapper blank being disposed with one end panel in a leading relation to the group of articles and with the other end panel in a trailing relation thereto and being above the group of articles, a tucking conveyor having a tucking reach disposed immediately above said path and movable in synchronism with the group of articles and wrapper, a tucking support mounted on said conveyor, a tucking pawl pivotally mounted on said tucking support, a cam lever pivotally mounted on said cam lever and a fixed cam surface disposed to be engaged by each of said cam levers so as to swing said tucking paws into engagement with leading and trailing parts of the wrapper blank and thereby to fold said parts downwardly and in the general direction of the group of articles.

8. A machine for packaging a plurality of articles in a wrap-around type of wrapper, said machine comprising means for advancing a group of articles along a predetermined path, means for advancing a wrapper blank along said path and immediately above a group of articles to be packaged, a tucking conveyor having a tucking reach disposed immediately above said path and movable in synchronism with the group of articles and wrapper, a tucking support mounted on said conveyor, a tucking pawl pivotally mounted on said tucking support, a cam lever pivotally mounted on said cam lever, gear means operably interconnecting said tucking pawl and cam lever, a fixed cam surface disposed to be engaged by each of said cam levers so as to swing said tucking pawl into engagement with leading and trailing parts of the wrapper blank and thereby to fold said parts downwardly and generally toward the group of articles, and biasing means for imparting swinging movement to said tucking pawl which is opposite in direction to the folding movement thereof after said cam lever disengages said cam surface.

9. A machine for packaging a plurality of articles in a wrap-around type of wrapper, said machine comprising means for advancing a group of articles along a predetermined path, means for advancing a wrapper blank along said path and immediately above a group of articles to be packaged, a tucking conveyor having a tucking reach disposed immediately above said path and movable in synchronism with the group of articles and wrapper, a tucking support slidably mounted on said conveyor and movable in a direction transverse to the path of movement of said tucking reach, a fixed cam surface disposed for engagement by said tucking supports for imparting transverse movement thereto, a tucking pawl pivotally mounted on said tucking support, a cam lever pivotally mounted on said cam lever, a fixed cam surface disposed to be engaged by said cam lever so as to swing said tucking pawl into engagement with a part of the wrapper and thereby to fold said part of the wrapper downwardly and generally toward the group of articles, and biasing means reacting between said gear means and said tucking support and arranged to oppose movement imparted to said tucking pawl due to engagement of said cam lever with said cam surface.

10. A machine for packaging a plurality of articles in a wrap-around type of wrapper, said machine comprising means for advancing a group of articles along a predetermined path, means for advancing a wrapper blank along said path and immediately above a group of articles to be packaged, a tucking conveyor having a tucking reach disposed immediately above said path and movable in synchronism with the group of articles and wrapper, a tucking support mounted on said conveyor, a tucking pawl pivotally mounted on said tucking support, a cam lever pivotally mounted on said support, gear means operably interconnecting said tucking pawl and cam lever, and a fixed cam surface disposed to be engaged by said cam lever so as to swing said tucking pawl into engagement with a part of the wrapper and thereby to fold said part of the wrapper downwardly and generally toward the group of articles, the ratio characterizing said gear means being such that movement of said tucking pawl is at a faster rate than movement of said cam lever.

11. A machine for packaging a plurality of articles in a wrap-around type of wrapper, said machine comprising means for advancing a group of articles along a predetermined path, means for advancing a wrapper blank along said path and immediately above a group of articles to be packaged, a tucking conveyor having a tucking reach disposed immediately above said path and movable in synchronism with the group of articles and wrapper, a tucking support mounted on said conveyor, a tucking pawl pivotally mounted on said tucking support, a cam lever pivotally mounted on said support, gear means operably interconnecting said tucking pawl and cam lever, and a fixed cam surface disposed to be engaged by each of said cam levers so as to swing said tucking pawls into engagement with leading and trailing parts of the wrapper blank and thereby to fold said parts downwardly and in the general direction of the group of articles.
cam surface disposed to be engaged by said cam lever so as to swing said tucking pawl into engagement with a part of the wrapper and thereby to fold said part of the wrapper downwardly and generally toward the group of articles, the ratio characterizing said gear means being such that movement of said tucking pawl is at a faster rate than movement of said cam lever, and biasing means reacting between said gear means and said tucking support and arranged to oppose movement imparted to said tucking pawl due to engagement of said cam lever with said cam surface.

12. A method of packaging a plurality of articles in a wrapper blank having a top panel, side panels foldably joined to the side edges of the top panel, and panels foldably joined respectively to the end edges of the top panel, anchor panels foldably joined respectively to the end edges of the side panels, and collapsible web structure respectively interconnecting the end edges of the end panels with the end edges of the adjacent anchor panels, the method comprising arranging the articles in a group of two rows of a plurality of articles in each row, moving the group along a predetermined path, placing the blank in transverse relation to the path of movement of the articles with the end and anchor panels in leading and trailing relation, moving the blank in synchronism with the group of articles, applying a tucking force to each web structure on both the leading and trailing edges of the blank to fold the web structure and the end and anchor panels relative to the top and side panels respectively and causing the folded end panels to be secured against the articles by moving the point of application of the tucking forces transversely inwardly of the top panel while the tucking force is being applied.

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