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(54) Two separate cartons combined as a single unit.

(57) A dual cigarette carton comprises two sub-cartons 30,32 held together by adhesive stickers 40,42,43. Each sub-carton holds five packs of twenty cigarettes. The dual carton passes through conventional carton-opening and tax-stamping apparatus, and the two-sub-cartons can be subsequently separated for sale separately.

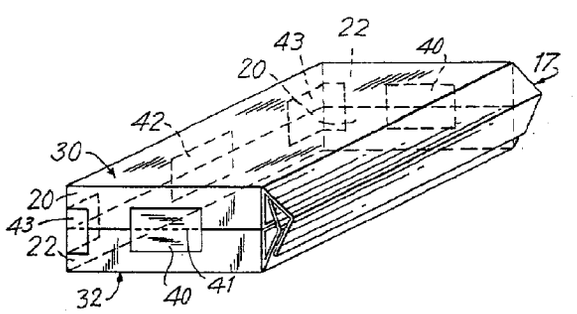

FIG. 3

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Background of the Invention

The present invention relates to cigarette cartons, and more particularly to the connection of or more two separate cigarette cartons to form a multiple carton.

Cigarette packs (which usually contain twenty cigarettes) are generally rectangular in shape, having front and back long walls connected by two short side walls. Cigarette cartons typically contain two rows of five cigarette packs per row (each row arranged so that the front long walls of the packs are in the same plane and the back long walls are in a parallel plane spaced from the front long walls) and are generally known to the art as ten-pack cartons. Such cigarette cartons are generally filled with cigarette packs by the manufacturer, temporarily closed (e.g., by folding the top flap of the carton over the box and releasably securing the flap in the closed position), and shipped to various distributors. The distributors generally open the cartons to apply the tax stamp that may be required by the jurisdiction in which they operate to the ends of individual cigarette packs while still inside the cartons. Such procedures are commonly automated, to reduce time, cost, and labor, through the use of specially designed machines for applying tax stamps. Tax-stamping machines have been developed to open the cartons, apply the stamps, and finally seal the cartons for distribution. Such machines are generally commercially available, and are well known to the art. These machines have been developed for standard ten-pack cigarette cartons. A typical tax-stamping machine is model FUSON manufactured by Meyercord of 365 East North Avenue, Carol Stream, Illinois 60187.

Single row cigarette cartons which are dimensioned to contain one row of five cigarette packs (each pack usually containing twenty cigarettes, the packs arranged so that the front long walls of the packs are in the same plane and the back long walls are in a parallel plane spaced from the front long walls), i.e., five-pack cartons, are also known to the art. However, although machinery exists for manufacturing such cartons, machinery does not exist for stamping the cigarette packs contained in such cartons. Consequently, such single row cartons must either be hand-stamped (as is done currently) or would have to be secured together in pairs in order to be run through the existent tax-stamping equipment in which double row cartons are stamped. To assure that the tax stamp is properly registered, the means for securing the cartons must be strong enough to keep the cartons together such that they are not sheared apart by the vertical rollers of the tax-stamping machines which roll along the vertical walls of the cartons to transfer the cartons between the various stages of the process.

If two single row cartons are to be secured together, the means for securement must allow for later separation of the cartons, if desired, by the retailer or consumer. For marketing purposes, once separated, the two cartons should have little or no trace of the means for securement which would disfigure the outward appearance of the cartons.

It is therefore desired to provide for the capability of manufacturing and distributing cartons narrower than those processed by existent tax-stamping machinery common to distributors, without requiring customized tax-stamping machinery or hand stamping of the packs.

It is also desired to provide a means for securing together two or more narrow cartons to form a dual or multiple carton such that the two narrow cartons do not move relative to one another while being transferred through tax-stamping machinery designed to process cigarette cartons having the dimensions of the dual or multiple carton.

It is also desired to provide a means for making a clean separation between the two or more narrow cartons if desired for sale as individual cartons instead of as a dual or multiple carton composed of two or more narrow cartons.

The present invention provides a multiple unit cigarette carton comprising at least two sub-cartons, the multiple unit carton being dimensioned to pass through a conventional tobacco tax-stamp applicators, adjacent sub-cartons being frangibly connected together for passage through a tobacco tax-stamp applicator and subsequent separation, the frangible connection comprising at least one sticker adhered across at least one pair of walls, one wall of the pair being from each sub-carton.

Further features of the invention, its nature, and various advantages will be more apparent from the accompanying drawings and the following detailed description of the preferred embodiments wherein like reference characters represent like elements throughout, and in which:

FIG. 1 is a plan view of an illustrative carton blank for a five-pack sub-carton in accordance with this invention;

FIG. 2 is an exploded isometric view of two five-pack sub-cartons, each constructed from a blank similar to that of FIG. 1, connected together in accordance with this invention to form, once connected, a ten-pack carton, as illustrated prior to insertion into the cartons;

FIG. 3 is an isometric view of two five-pack sub-cartons before tax-stamping, connected with at least one carrier means bearing adhesive affixed to the external sides of the sub-cartons to thereby connect the sub-cartons in accordance with this invention;

FIG. 4 is an enlarged partial side view in cross section of two five-pack sub-cartons connected with an illustrative carrier means bearing adhe-

sive affixed between the internal sides of the sub-cartons, i.e., between the sub-cartons and not readily visible;

FIG. 5 is an enlarged partial side view in cross section of two five-pack sub-cartons connected with two illustrative carrier means bearing adhesive, affixed in a similar fashion as shown in FIG. 4;

FIG. 6 is an isometric view of two five-pack sub-cartons after tax-stamping, connected with at least one carrier means bearing adhesive;

FIG. 7 is a bottom plan view of two five-pack sub-cartons connected with at least one carrier means bearing indicia for price coding;

FIG. 8 is a plan view of an illustrative carton blank for forming two five-pack sub-cartons joined by a perforated line in accordance with this invention;

FIG. 9 is an isometric view of the final step in forming a ten-pack carton from two five-pack sub-cartons constructed from the blank of FIG. 8; and

FIG. 10 is an exploded view similar to FIG. 2 but showing sub-cartons constructed from the blank of FIG. 8;

FIG. 11 is a plan view of an illustrative sub-carton blank for a carton in accordance with this invention;

FIG. 12 is an isometric view of a two-pack sub-carton in accordance with this invention;

FIG. 13 is an isometric view of a two-pack sub-carton joined to an eight-pack carton in accordance with this invention;

FIG. 14 is an isometric view of a four-pack sub-carton joined to a six-pack sub-carton in accordance with this invention;

FIG. 15 is a plan view of an illustrative conventional carton blank for a cigarette carton which is typically passed through automated cigarette carton processing equipment;

FIG. 16 is an isometric view of a carton formed from the blank of FIG. 15;

FIG. 17 is an isometric view of the carton-opening portion of a tax-stamping machine;

FIG. 18 is an isolated end view of hold-down guides of a tax-stamping machine;

FIG. 19 is a top view of an open cigarette carton approaching hold-down guides;

FIG. 20 is an end view of an open typical cigarette carton approaching hold-down guides;

FIG. 21 is an end view of an open cigarette carton having a tuck-in flap on each side approaching hold-down guides;

FIG. 22 is a plan view of an illustrative sub-carton blank for a five-pack sub-carton of a multiple unit carton in accordance with this invention;

FIG. 23 is an isometric view of two five-pack sub-cartons formed from the blank of FIG. 22, joined to form a dual carton, and having their tuck-in flaps overlapped;

FIG. 24 is a plan view of an illustrative sub-carton blank similar to that of FIG. 22, but having a modified tuck-in portion;

FIG. 25 is an isometric view of two five- pack sub-cartons formed from the blank of FIG. 23, joined to form a dual carton, and having their tuck-in flaps overlapped;

FIG. 26 is a plan view of an illustrative sub-carton blank similar to that of FIG. 24, but having an additional tuck-in portion;

FIG. 27 is an isometric view of two five- pack sub-cartons formed from the blank of FIG. 26, joined to form a dual carton, and having the tuck-in portions of the tuck-in flaps folded under the top closure portion and the additional tuck-in portion tucked between the exterior walls of the sub-cartons and the cigarette packs in the cartons;

FIG. 28 is a plan view of an illustrative carton blank for forming two five-pack sub-cartons joined by a perforated line, each half similar to the blank of FIG. 22;

FIG. 29 is an isometric view of the final step in forming a ten-pack carton from two five-pack sub-cartons constructed from the blank of FIG. 28;

FIG. 30 is an isometric view of the dual carton of FIG. 23, with its flaps open so that a tax stamp may be applied to the exposed ends of the cigarette packs in the carton;

FIG. 31 is an isometric view of the dual carton of FIG. 25, with its flaps open so that a tax stamp may be applied to the exposed ends of the cigarette packs in the carton;

FIG. 32 is a partial side view of a carton having a tapered tuck-in flap being held down by a hold-down guide for a short lap flap;

FIG. 33 is an isometric view of the dual carton of FIG. 27, but in which only the tuck-in portion of one tuck-in flap is folded under its adjoining top closure portion, and in which both flaps are open so that a tax stamp may be applied to the exposed ends of the cigarette packs in the carton; and

FIG. 34 is an isometric view of the dual carton of FIG. 23 after tax-stamping, and showing the tucking of the tuck-in flaps into the carton.

FIG. 35 shows another embodiment of a carton according to the invention;

FIG. 36 shows another embodiment of a dual carton according to the invention with the lids of the constituent cartons partly opened;

FIG. 37 shows the embodiment of FIG. 36 with the lids closed;

FIG. 38 shows another embodiment of a dual carton according to the invention; and

FIG. 39 shows a preferred carrier for use in cartons according to the invention.

Detailed Description of the Invention

As shown in FIG. 1, blank 100, used for forming a sub-carton adapted to hold one row of five cigarette packs, i.e., a five-pack sub-carton, has a plurality of fold lines represented by broken lines. Blank 100 is preferably formed from a substantially rigid material such as paperboard. Each relatively large panel 10 and 12 of blank 100 is substantially five times the width of a long wall of a cigarette pack to be enclosed therein. As used herein, a standard cigarette pack is defined as any pack commonly used for holding a predetermined number of cigarettes, and generally having front and back long walls connected by two short side walls. When blank 100 is folded along respective fold lines 10a and 12a, panel 10 becomes the front wall of the sub-carton and panel 12 becomes the rear wall. Joining panels 10 and 12 is a bottom panel 14, which forms the bottom wall of the sub-carton when the blank is folded into a sub-carton. Panel 16, having substantially the same dimensions as bottom panel 14, extends from rear panel 12.

After walls 10 and 12 are assembled, panel 16 is folded along fold line 16a over the top of the sub-carton to extend between walls 10 and 12 of the sub-carton. Extension panel 18 joins panel 16 along a fold line 18a. Additional fold lines similar to fold lines 10a, 12a, 16a and 18a, are shown as broken lines located on blank 100 and on blank 200 (FIG. 8), but are not individually labeled.

Panels 16 and 18 together form a top and tuck-in flap 17. When the sub-carton is formed and is ready for consumer purchase, extension panel 18 preferably lies substantially parallel to front wall 10, preferably inside the sub-carton, and panel 16 is folded over the top of the sub-carton towards front wall 10. Side panels 20a and 20b are folded one over the other to form a side wall 20 of the sub-carton. Side panels 22a and 22b are folded in a similar fashion to form side wall 22. The "a" panel is preferably folded over the "b" panel. Tabs 24 and 26 are preferably folded perpendicular to panel 14 before the side panels are folded and will eventually lie substantially parallel to side walls 20 and 22, respectively. The distance between panels 10 and 12 of the completed sub-carton is substantially the same as the distance between the front and back long walls of the enclosed cigarette packs.

FIG. 2 shows two five-pack sub-cartons 30, 32 connected along their front walls 10, hereinafter referred to as interior walls 11, and prepared for insertion of a bundle 34 of ten cigarette packs 36. Rear walls 12 remain visible after connection of sub-cartons 30, 32, and are hereinafter referred to as exterior walls 13. Because the "a" panels of blank 100 are preferably folded over the "b" panels (panels 20a, 22a, 20b, and 22b shown in FIG. 1), the free edge of each of the "a" panels of the side walls faces inwardly, i.e., the free edges lie adjacent the interior walls 11, when sub-cartons 30, 32 are joined. In this configuration, the free edges of the "a" panels are not readily accessible and thus are relatively safe from being accidentally lifted from their place adjacent the "b" panels.

Packs 36 are preferably arranged in two rows of five packs per row with the short walls of adjacent packs facing each other and the long walls of the packs arranged in parallel planes such that the front walls of each row are in a first single plane and the rear walls of each row are in a second single plane spaced from and parallel to the first single plane. Furthermore, it is desirable to place packs 36 in their respective sub-cartons such that their front walls (defined by the orientation of printed matter on the exterior surface of the walls) face interior walls 11 of sub-cartons 30, 32. Flaps 17, which are formed from panels 16 and 18 of each blank 100 which forms sub-cartons 30, 32, are shown opened in FIG. 2 such that the interiors of sub-cartons 30, 32 are readily accessible for insertion of bundle 34.

As shown in FIG. 8, sub-cartons 30, 32 may be formed from a single blank 200. Each half of blank 200 resembles blank 100, with like reference characters representing like elements, and broken lines representing fold lines. The substantially identical halves of blank 200 are connected by frangible means 31, i.e., a line of weakness such as a perforated line. Each half is individually folded to form a separate individual sub-carton. Once each sub-carton 30, 32 is formed, the blank is folded along line 31, as shown in FIG. 9, so that panels 10 lie against one another, facing each other as interior walls 11. The completed combined cartons may be seen in FIG. 10, which is similar to FIG. 2 (with like reference characters representing like elements) except that the sub-cartons are joined along a perforated line formed in the blank which forms both the carton.

Illustrative carrier means bearing adhesive, hereinafter referred to as stickers 40, 42, and 43, are shown in FIG. 3. The carrier means of stickers 40, 42, and 43 are preferably mylar or paper, and bear either a permanent adhesive (any known permanent adhesive) or a releasable pressure-sensitive adhesive. Releasable, pressure-sensitive adhesive is herein defined as any adhesive known to the art which, preferably, is clear, has no taste or odor, and does not cause fiber pull of the carrier means or leave a tacky residue once the surfaces joined by the adhesive are separated (e.g., any adhesive known to the art which provides a strong bond between surfaces but once the surfaces are pulled apart, the bonds of the adhesive are broken and the adhesive is no longer tacky). The adhesive must be sufficiently strong to hold the sub-cartons firmly in place relative to one another and resist such shearing force which would reasonably be applied through a difference in forces applied by vertical rollers of tax-stamping machines which roll

along exterior walls 13 of the cartons during the tax-stamping process.

Stickers 40 are applied across side walls 20, 22 to maintain side walls 20, 22 in the same plane and adjacent one another. Either or both of stickers 40 may optionally have a frangible means 41, i.e., a line of weakness such as a perforated line, preferably positioned substantially parallel to the line defined by the intersection of the sticker and the plane which extends between and out from interior walls 11 (i.e., positioned between the two sub-cartons) to facilitate a clean separation of the two sub-cartons.

Sticker 42 is similarly applied across bottom walls 14 to likewise maintain bottom walls 14 in the same plane and adjacent one another. Sticker 42 may also have a frangible means (not shown) similar to frangible means 41.

Stickers 43 are applied partially across side walls 20, 22 and partially across bottom walls 14 to maintain side walls 20, 22 and bottom walls 14 in their respective planes and adjacent one another. Either or both of stickers 43 may optionally have a perforated line, preferably positioned substantially parallel to the line defined by the intersection of the sticker and the plane which extends between and out from interior walls 11.

Flaps 17 are shown in FIG. 3 as being lapped over one another in preparation to be shipped to a distributor and later opened, or, alternatively, in position for distribution to individual wholesalers or retailers for subsequent distribution to consumers. If desired, panel 18 of one of flaps 17 may be folded in and releasably secured under the panel 16 from which it extends to form a short top flap which is secured under the other, unfolded flap 17.

One of stickers 40, 42, or 43 may optionally bear pricing indicia such as Universal Price Code (U.P.C.) or other pricing bar code, such as shown on sticker 42a in FIG. 7. If such indicia are included, the sticker bearing such indicia may be used in combination with any or all of the disclosed stickers. Sticker 42a is placed along and across the bottom walls 14 of sub-cartons 30, 32, with the lines of the pricing bar code being positioned substantially parallel to the adjacent edges of the walls 14 across which sticker 42a is placed. Preferably, frangible means 41 are included on sticker 42a positioned substantially parallel to the line defined by the intersection of the sticker and the plane between interior walls 11, and therefore substantially parallel to the lines of the bar code as well.

Similar pricing indicia (not shown) may be printed on the outer surface of the interior walls 11 of the sub-cartons, such that the indicia are not visible when the sub-cartons 30, 32 are joined to form a dual carton. The readily visible indicia on sticker 42a are preferably coded for sale of the combined ten-pack dual carton and are rendered unreadable by automatic scanning equipment upon tearing sticker 42a to separate the two five-pack sub-cartons 30, 32. The pricing indicia on interior walls 11 are preferably coded for sale of the individual five-pack sub-cartons, and can be scanned only after separating the dual carton into individual sub-cartons.

Carrier means bearing adhesive, hereinafter referred to as stickers 50, 52, are shown in cross section in FIGS. 4 and 5. Sticker 50 has a single carrier means 54, preferably mylar or paper, with permanent adhesive 56 (any known permanent adhesive) applied to both sides of carrier means 54. Permanent adhesive 56 is preferably only applied to one half of each side of carrier means 54, at opposite ends of carrier means 54, such that at each point along the length of carrier means 54 there is adhesive on only one side of carrier means 54. Hence, when sticker 50 is positioned between sub-cartons 30, 32, one half of sticker 50 adheres to interior wall 11 of sub-carton 30 while the other half of sticker 50 adheres to interior wall 11 of sub-carton 32. The sub-cartons are separated by tearing carrier means 54 along the line where the adhesive halves meet. Carrier means 54 preferably has a frangible means 51, i.e., a line of weakness such as a perforated line, to facilitate such separation of sub-cartons 30, 32. Interior walls 11 may be securely fastened to one another by one or more sticker means 50 during the tax stamping process, but may be later separated from one another without much difficulty and without leaving behind any unsightly residue or frayed carrier means edges.

Sticker 52 is comprised of two carrier means 54, 54, preferably mylar or paper, set between interior walls 11, 11 of sub-cartons 30, 32. The side of each carrier means 54 immediately facing an interior wall 11 carries permanent adhesive 56 (such as described above). The side of each carrier means 54 immediately facing an adjacent carrier means 54 carries releasable pressure-sensitive adhesive 58 (such as described above). Hence, both carrier means 54 are securely held onto their respective interior walls 11 by permanent adhesive 56 and are also securely connected to each other by pressure-sensitive adhesive 58 while undergoing the mechanized tax-stamping process. If separation of the two sub-cartons 30, 32 is desired, carrier means 54 may be pulled apart along tack/non-tack releasable adhesive 58. Adhesive 58 is selected such that when the sub-cartons 30, 32 are separated, the surface of carrier means 54 leaves no tacky residue. One or more sticker means 52 may be provided between interior walls 11 to connect sub-cartons 30, 32.

Once connected sub-cartons 30, 32 have undergone the mechanized tax-stamping process, the cartons are ready for shipment to a local retailer or wholesaler. As shown in FIG. 6, flaps 17 (which were open during the mechanical tax stamping process to provide access to packs 36 contained in sub-cartons 30, 32 for tax stamp application by distributors) may now,

optionally, be tucked into the individual sub-cartons, and the sub-cartons held together by a sticker across their top walls. Alternatively, the flaps can be lapped over each other, similar to lapping shown in FIG. 3, and secured flat across the tops of the sub-cartons 30, 32.

Although each sticker is described as individually used, any combination of stickers may be used to achieve the desired secure connection between the two five-pack sub-cartons 30, 32. Accordingly, stickers 50 and 52 may be used to connect interior walls 11, while stickers 40, 42 and 43 may be used for additional external connection of the cartons. Other combinations of stickers 40, 42, 43, 50, and 52 are also acceptable. Additionally, a transparent band of material, such as common in the art, may be wrapped around the sub-cartons to further secure them together.

Although adhesives 56 and 58 are described as being permanent and releasable, respectively, it will be appreciated that adhesive 56 may alternatively be a releasable adhesive and adhesive 58 may alternatively be a permanent adhesive, both types of adhesive being known to the art.

Although flaps 17, designed to be tucked into sub-cartons 30, 32, are shown, it will be appreciated that any appropriate flap may be used, such as a flap with panel 16 without extension 18, intended to be lapped over the top of the sub-carton, but not tucked partially inside the sub-carton.

Although extension panel 18 is described as tucked inside the sub-carton, extension panel 18 may alternatively be secured to the outside of the sub-carton.

Although sub-cartons 30, 32 are described as each dimensioned to hold one row of five cigarette packs, they may be lengthened or shortened to hold more or fewer than five packs. Furthermore, it will be appreciated that these concepts may be applied to the connection of cartons of other configurations for which distributors commonly have tax-stamping machinery.

The invention is not limited to rectangular cartons and packs, but includes all configurations which are available to consumers. Cigarette cartons include cartons with windows, cartons with rounded edges, and other configurations which are designed to be passed through tax-stamping equipment. Cigarette packs include such packs as oval packs, packs with rounded edges, and other non-rectangular shapes.

Multiple cartons according to the invention may include more than two sub-cartons. FIGS. 11 to 14 show such a carton.

Blank 1100, shown in FIG. 11, is an illustrative blank for forming sub-cartons in accordance with this invention. Blank 1100 is preferably formed from a substantially stiff material such as cardboard or paperboard, and has a front panel 1010, a rear panel 1012, and a bottom panel 1014, which are each folded along fold lines, shown as broken lines not individually labeled, to form a sub-carton. Outer top extension panel 1016, and an inner extension panel 1018 are folded over the top of the completed sub-carton, with panel 1016 above panel 1018, to form a top wall. Preferably panel 1016 extends the entire distance between panels 1010 and 1012 when blank 1100 is folded into a sub-carton, while panel 1018 preferably extends only half this distance. Dust flaps 1024 and 1026 are folded preferably perpendicular to bottom wall 1014. Panels 1020a and 1022a are then folded adjacent dust flaps 1024 and 1026, respectively, and substantially perpendicular to panel 1012. Preferably dust flaps 1024 and 1026 include cut edges 1025 and 1027, respectively, and panels 1020a and 1022a include cut edges 1021 and 1023, respectively. When included, edge 1021 aligns with edge 1025 and edge 1023 aligns with edge 1027 so that panel 1020a lies in the same plane as dust flap 1024, and panel 1022a lies in the same plane as dust flap 1026. Panels 1020b and 1022b are folded over panels 1020a and 1022a, respectively, to complete side wall 1020, formed by panels 1020a and 1020b, and side wall 1022, formed by panels 1022a and 1022b. Although width 5A of panels 1010 and 1012 of blank 1100 is preferably equal to five times dimension A, the width of the long wall of a cigarette pack to be contained in the sub-carton formed by blank 1100, the width of panels 1010 and 1012 can be any multiple of dimension A. Preferably the dimension of side walls 1020 and 1022 is twice that of the short side wall of a cigarette pack to be contained in the sub-carton formed by blank 1100, but may be any multiple of this dimension, as well.

Two-pack sub-carton 1032, formed by a blank similar to blank 1100, but with front and rear panels of width A, is shown in FIG. 12. Sub-carton 1032 has a front wall 1101 from which inner extension panel 1181 extends; a rear wall 1121 from which outer extension panel 1161 extends; side walls 1201 and 1221; and bottom wall 1141. Side walls 1201 and 1221 are preferably formed of panels similar to panels 1020a, 1020b, 1022a, and 1022b. Preferably panel 1161 is the same dimension as wall 1141, extending the entire distance between walls 1101 and 1121, while panel 1181 referably only extends approximately half this distance. Sub-carton 1032 is dimensioned to contain two cigarette packs 1036, arranged in sub-carton 1032 with their long walls parallel to front wall 1101 and rear wall 1121, and their side walls parallel to side walls 1201 and 1221

In FIG. 13, two sub-cartons, 1032 and 1038, are connected along side wall 1221 of two-pack carton 1032, and side wall 1204 of eight-pack carton 1038, to form a ten-pack carton. Sub-carton 1038 is similar to sub-carton 1032, having a front wall 1104, a rear wall 1124, a top wall 1164 (formed from two extension panels similar to panels 1161 and 1181), a bottom wall

1144, and side walls 1204 and 1224 (each formed from side panels similar to panels 1020a, 1020b, 1022a, and 1022b). However, the dimension of panels 104 and 124 of sub-carton 1038 is 4A, as opposed to A, the dimension of panels 1101 and 1121 of sub-carton 1032. Sub-carton 1038 is thus dimensioned to contain eight cigarette packs arranged in two rows of four packs per row (i.e., four columns of two packs each). As shown, sub-cartons 1032 and 1038 are joined by a carrier means bearing adhesive, hereinafter referred to as sticker 1050, which is described in greater detail below.

Panels 1161 and 1164 extend from rear walls 1121 and 1124, respectively, of sub-cartons 1032 and 1038, and preferably extend the entire distance between walls 1101, 1121, 1104, and 1124. Sub-cartons 1032 and 1038 are shown joined along side wall 1221 of sub-carton 1032 and side wall 1204 of sub-carton 1038 such that front walls 1101 and 1104 are coplanar, and rear walls 1121 and 1124 are coplanar. Hence, panels 1161 and 1164 extend from the same side of the combined sub-carton. Panel 1181, and the corresponding panel extending from front wall 1104 of sub-carton 1038, are preferably shorter than panels 1161 and 1164, such that the top extension panel configurations of sub-cartons 1032 and 1038 resemble the top extension panel configuration of a typical cigarette carton. In this configuration, the tax- stamping machine through which the multiple carton is passed can easily open the top extension panels of the multiple carton to apply the required tax stamp to cigarette packs contained within the carton.

A multiple carton similar to the carton of FIG. 13 is shown in FIG. 14, made up of a four-pack sub-carton 1034 and a six-pack sub-carton 1036. Each sub-carton has front walls 1102 and 1103; rear walls 1122 and 1123; side walls 1202, 1222, 1203, and 1223, formed from side panels similar to panels 1020a, 1020b, 1022a, and 1022b; bottom walls 1142 and 1143; and top walls 1162 and 1163, formed from extension panels similar to panels 1016 and 1018. Sub-cartons 1034 and 1036 thus resemble one another, except the dimension of panels 1102 and 1122 is 2A, twice the width of a long wall of a cigarette pack, while the dimension of panels 1103 and 1123 is 3A, three times the width of a long wall of a cigarette pack. Sub-carton 1034 thus is dimensioned to contain four cigarette packs while sub-carton 1036 is dimensioned to contain six cigarette packs, the packs arranged with their long walls parallel the front and rear walls of the sub-cartons and their side walls abutting one another and parallel to the side walls of the sub-cartons.

Sub-cartons 1034 and 1036 are shown joined by at least one carrier means bearing adhesive, hereinafter referred to as sticker 1040, positioned across adjacent coplanar walls, The carrier means of sticker 1040 is preferably mylar or paper, and bears either a permanent adhesive (any known permanent adhesive) or a releasable pressure-sensitive adhesive. Releasable, pressure- sensitive adhesive is herein defined as any adhesive known in the art which has no taste or odor, and does not cause fiber pull of the carrier means or leave a tacky residue once the surfaces joined by the adhesive are separated (e.g., any known adhesive which provides a strong bond between surfaces but once the surfaces are pulled apart, the bonds of the adhesive are broken and the adhesive is no longer tacky). The adhesive must be sufficiently strong to hold the cartons firmly in place relative to one another and resist such shearing force which would reasonably be applied through a difference in forces applied by vertical rollers of tax-stamping machines which roll along the front and rear walls of the cartons during the tax- stamping process. The carrier means of sticker 1040 preferably includes a line of weakness such as perforated line 1041, which is preferably positioned along the plane of abutment of the two sub-cartons to facilitate separation of the two cartons.

Although cartons 1032 and 1038 are shown in FIG. 13 as joined by sticker 1050, sticker 1040 may be used in combination with sticker 1050 or only sticker 1040 may be used to join cartons 1032 and 1038. Likewise, although sub-cartons 1034 and 1036 are shown in FIG. 14 as joined by sticker 1040, sticker 1050 may be used in combination with sticker 1040 or only sticker 1050 may be used to join sub-cartons 1034 and 1036. Moreover, any desired number of stickers 1040 or 1050 may be used to join any of the sub-cartons to each other, and either or both embodiments of sticker 1050 may be used. Additionally, a transparent band of material such as common in the art, may be wrapped around the cartons to further secure them together walls 1101, 1121, 1104, and 1124. Although adhesives 1056 and 1058 are described as being permanent and releasable, respectively, it will be appreciated that adhesive 1056 may alternatively be a releasable adhesive and adhesive 1058 may alternatively be a permanent adhesive, both adhesives being known in the art.

Although "b" panels 1020b and 1022b are dimensioned so that the "b" panels are to be folded over "a" panels 1020a and 1022a to form side walls, the "a" panels may be dimensioned to be folded over the "b" panels, instead.

Although only the connections of a two-pack sub-carton with an eight-pack sub-carton and a four-pack sub-carton with a six-pack sub-carton are shown, any other combinations of sub-cartons is within the scope of this invention. Moreover, the dimension of the multiple carton formed by the connection of sub-cartons is not limited to that of a ten-pack carton, but may be of any desired dimension for containing any convenient number of cigarette packs.

In order to facilitate the passage of multiple cartons of the invention through tax stamping apparatus,

the shape of the lid flaps may be modified. FIGS. 15 to 20 show a conventional cartons and a conventional tax stamping machine.

Blank 5100, shown in FIG. 15, is typical of blanks used for conventional cigarette cartons. Blank 5100 is preferably formed from a substantially rigid material such as paperboard or cardboard, and has a plurality of fold lines represented as broken lines (not individually labeled) along which the panels are folded to form the carton. Panels 110 and 112 form, respectively, the front and rear walls of the carton, and each are preferably approximately five times the width of a long wall of a cigarette pack to be enclosed in the completed carton. These panels each extend from, and are subsequently joined along bottom panel 114, which is preferably the same width as the front and rear panels. Preferably, the length of bottom panel 114 is at least as long as either one or two times the width of the short wall of a cigarette pack to be enclosed in the completed carton. Hence, the carton formed from blank 5100 is dimensioned to contain either five cigarette packs or ten cigarette packs arranged in rows of five packs per row, the packs arranged with their short walls abutting one another. As used herein, a cigarette pack is defined as any pack commonly used for holding a predetermined number of cigarettes, and generally having front and back long walls connected by two short side walls. Extension panels 116 and 118, extending from panels 112 and 110, respectively, form a pair of lap flaps for closing the formed carton. Panel 116 is preferably the same dimension as bottom panel 114 and is to be folded over panel 118, which may be any desired dimension which provides sufficient surface area for joining panels 116 and 118. Dust flaps 124 and 126 are folded preferably perpendicular to bottom wall 114. Side panels 120b and 122b are then folded adjacent dust flaps 124 and 126, respectively, and substantially perpendicular to panel 110. Side panels 120a and 122a are folded over side panels 120b and 122b, respectively, to complete side wall 120, formed by side panels 120a and 120b, and side wall 122, formed by side panels 122a and 122b.

Completed carton 150, formed from blank 5100, is shown in FIG. 16, filled with cigarette packs 36. Flaps 116 and 118 are shown open, exposing packs 36 so that a tax stamp may be applied to the ends of the packs. Because flap 118 is shorter than flap 116, and preferably approximately one half the length of flap 116, the orientation of the carton is important when it is passed through a tax-stamping machine. Thus, if the hold-down guide for the shorter flap is on the right side of the conveyor path, side wall 122 must be the leading side of the carton into the machine.

The carton opening portion 600 of a typical tax-stamping machine is shown in FIG. 17. A cigarette carton such as carton 150, having lap flap 116 folded over and temporarily secured to lap flap 118 with releasable adhesive, is opened for tax-stamping as follows. Cigarette carton 150 travels along path 610 lengthwise, i.e., with long walls 110 and 112 of carton 150 substantially parallel to path 610. Walls 110 and 112 of carton 150 are squeezed together by pinch rollers (not shown) similar to pinch rollers 644 and 646 to cause lapped flaps 116 and 118, temporarily secured together, to bow upwards. Plow 620 can then be inserted between the flaps and the cigarette packs in carton 150 to plow open the lapped flaps. The bottom portion of the plow widens to bend the flap substantially perpendicular to walls 110 and 112 of the carton, and the carton is then passed under contoured portion 622 which further bends the flaps toward walls 110 and 112. After leaving contoured portion 622, lap flaps 116 and 118 may not be completely flat against walls 110 and 112, as would be desirable. Hold-down guides, described in greater detail below, further fold lap flaps 116 and 118 so that they lie substantially parallel to and flat against walls 110 and 112. Lap flaps 116 and 118 are substantially flat against walls 110 and 112 when carton 150 passes between pinch rollers 644 and 646, housed in housings 640 and 642, which further flatten the lap flaps against the walls. Thus, lap flaps 116 and 118 will not obstruct the cigarette packs in carton 150 when carton 150 is passed through the tax-stamping portion of the tax-stamping machine. To maintain lap flaps 116 and 118 in this position, carton 150 is guided between walls such as walls 626 and 628.

An end view of hold-down guides 630 and 632 is shown in FIG. 18, as seen from path 610, approaching the hold-down guides. Each hold-down guide 630 and 632 is substantially L-shaped, having an upper horizontal portion 631, 633, and a lower vertical portion 635, 637. Hold-down guides 630 and 632 are positioned at angle to path 610, so that the space between hold-down guides 630 and 632 narrows as carton 150 passes through the guides. The ends of lap flaps 116 and 118 encounter and are pushed down by horizontal portions 631 and 633 to be substantially flat against walls 110 and 112.

An overhead view of carton 150 approaching hold-down guides 630 and 632 is shown in FIG. 19. Lap flaps 116 and 118 are shown, in exaggeration, as not completely flat against walls 110 and 112, Thus, although the width of carton 150 is substantially the same as distance D between hold-down guides 630 and 632, lap flaps 116 and 118 extend the apparent width of carton 150 beyond distance D. The protruding ends of lap flaps 116 and 118 encounter hold-down guides 630 and 632 and are progressively pushed closer to walls 110 and 112 as hold-down guides 630 and 632 become closer to each other downstream of path 610.

The paperboard from which carton 150 is formed has "memory", such that when lap flaps 116 and 118 are folded, they tend to fold back to a position sub-

stantially parallel to walls 110 and 112, i.e., the position in which they are when the carton is still an unfolded blank. As shown in FIG. 20, because lap flap 116 is longer than lap flap 118, horizontal portion 631 is positioned lower than horizontal portion 633. The bottom edge of lap flap 116 barely extends below the bottom edge of horizontal portion 631, and the bottom edge of lap flap 118 barely extends below the bottom edge of horizontal portion 633. Thus, any portion of either lap flap 116 or 118 which resists being folded will be held down by horizontal portions 631 and 633, respectively.

When five-pack sub-cartons formed from a blank similar to blank 100 are used to form a dual carton according to the invention, front walls 110 are positioned adjacent and coextensive with one another and flaps 118 must be folded down between walls 110, so that they are not in the way of the tax-stamper. Preferably, five-pack sub-cartons having tuck-in flaps which may be overlapped to temporarily close the cartons are used instead. Tuck-in flaps of five-pack sub-cartons typically have a top closure panel which is approximately the same size as short lap flap 118 of a ten-pack carton, and an additional tuck-in portion, which is tucked into the carton to close the carton. Such cartons also allow for opening and reclosing of the carton by the consumer.

When five-pack sub-cartons with tuck-in flaps are secured together to form a dual carton, the tuck-in flaps are preferably positioned so that they are along the exterior of the dual carton in substantially the same positions as lap flaps 116 and 118, and may be overlapped to close the carton. The tuck-in portion of the tuck-in flaps of each of the joined sub-cartons is preferably the same dimension as the top closure panel so that each tuck-in flap will extend across the entire top of the ten-pack carton. Such tuck-in flaps may be plowed open by plow 620 as lap flaps 116 and 118 are plowed open. However, as shown in FIG. 21, tuck-in flap 17 consequently is longer than short lap flap 118 of a typical ten-pack carton, and tuck-in portion 18 extends below horizontal portion 633 of hold-down guide 632. The "memory" of tuck-in portion 18 typically prevents tuck-in portion 18 from being held down with the remainder of tuck-in flap 17, and tuck-in portion 18 is thus easily snagged by vertical portion 637 of hold-down guide 632. Blanks 200, 300, 400, and 500 of FIGS. 22, 23, 24, and 25, respectively, provide tuck-in flaps having tapered tuck-in portions so that the shortest part of the tapered tuck-in portion is properly held down by hold-down guide 632 and does not have sufficient "memory" to extend beyond the plane of tuck-in flap 17 and be snagged. Once the longer portion of the tapered tuck-in portion reaches the hold-down guide, the entire flap is already adequately held down so that the longer portion also remains substantially flat against the walls of the carton and is not snagged.

Each of blanks 200, 300, 400, and 500 of FIGS. 22, 24, 26, and 28 have a front panel 10, and a rear panel 12 which are substantially the same as panels 110 and 112 of blank 5100. Bottom panel 14 is preferably the same width as panels 10 and 12, and sufficiently longer than the width of the short wall of a cigarette pack, so that the sub-carton formed from blank 200 is dimensioned to contain one row of five cigarette packs. Dust flaps 24 and 26, which correspond to dust flaps 124 and 126 of blank 100, are folded preferably perpendicular to bottom wall 14. Side panels 20b and 22b are then folded adjacent dust flaps 24 and 26, respectively, and substantially perpendicular to panel 10. Side panels 20a and 22a are folded over side panels 20b and 22b, respectively, to complete side wall 20, formed by side panels 20a and 20b, and side wall 22, formed by side panels 22a and 22b. The width of each of side walls 20 and 22 is the same as the length of bottom wall 14. Each half of blank 500 is substantially identical to blank 200. The halves of blank 500 which each form a separate five-pack sub-carton are joined along a line of weakness such as perforated line 31.

Instead of having lap flaps, the sub-cartons formed from blanks 200, 300, 400, and 500 have a tuck- in flap composed of a top closure panel 16 and a tuck- in panel 18, having an end 19 adjacent wall 20, and an end 21 adjacent wall 22. Top closure panel 16 is substantially rectangular and the same dimension for each of blanks 200, 300, 400, and 500. Tuck-in panel 18 of each of blanks 200, 300, 400, and 500 is tapered.

Tuck-in panel 2018 of blanks 200 and 500 has a single taper along the entire width of panel 2018. The length of end 19a is preferably short enough so that the hold-down guide which usually holds down the shorter lap flap of a cigarette carton does not snag the remaining longer section of tuck-in flap 17a, formed by top closure panel 16 and tuck-in panel 2018, when side wall 20 is the first side wall to approach the tax-stamping machine and end 19a is on the side of a hold-down guide for a short lap flap. Furthermore, the Length of end 19a also is preferably long enough so that it will remain tucked inside the sub-carton to close the it, when desired. A length which satisfies both such requirements is approximately one-quarter the length of top closure panel 16. The length of end 21a is preferabLy the same as the length of top closure panel 16.

Sub-cartons 30 and 32 which form the dual cartons of FIGS. 23, 25, 27, 29, 30 and 31, are joined so that the tuck-in flaps 17 extend from walls which remain visible after the sub-cartons are joined, i.e., walls 12, hereinafter referred to as exterior walls 13. Because "a" panels 20a and 22a are preferably folded over "b" panels 20b and 22b, the free edges of each of the "a" panels of the side walls faces inwardly, i.e., the free edges lie adjacent walls 10, hereinafter refer-

red to as interior walls 11, when sub-cartons 30, 32 are joined. In this configuration, the free edges of the "a" panels are not readily accessible and thus are relatively safe from being accidentally lifted from their place adjacent the "b" panels.

As shown in FIG. 23, when two blanks 200 are folded into sub-cartons 30 and 32 and joined to form dual carton 50, tuck-in flaps 17a may be overlapped to temporarily seal the dual carton. Because end 21a of tuck-in panel 2018 is substantially the same length as top closure panel 16, the longest end 21a of tuck-in flaps 17a of sub-cartons 30 and 32 will extend across the entire top of dual carton 50. Tuck-in flaps 17a of the dual carton formed by blank 500, may similarly be overlapped. The final stages of folding blank 500 into a dual carton are shown in FIG. 29. The sub-cartons are joined by carrier means bearing adhesive such as labels 40, applied across adjacent coplanar side walls, label 42, applied across the bottom walls, and label 43, applied across the corners of sub-cartons 30 and 32, or other labels. Tuck-in flaps 17a may be joined by releasable adhesive or by a label similar to the above-mentioned labels. Any of the above-mentioned labels may optionally bear pricing indicia such as Universal Product Code (U.P.C.) indicia for the automatic pricing of the dual carton. The indicia are preferably positioned such that they are rendered unreadable by automatic scanning equipment upon separating the sub-cartons. Preferably, if pricing indicia are included, only one label bearing pricing indicia is used.

Tuck-in panel 2019 of blank 300 shown in FIG. 24 has two tapers along the width of panel 2019. The tapers join at pointed central section 23b preferably proximal the center of panel 2019. The length of ends 19b and 21b of panel 2019 which are adjacent the side walls of the sub-carton formed from blank 300 is preferably short enough so that the hold-down guide which usually holds down the shorter lap flap of a cigarette carton does not snag tuck-in panel 2019. Furthermore, the length of ends 19b and 21b of panel 2019 also is preferably long enough so that tuck-in flap 17b will remain tucked inside the sub-carton, when desired. A length which satisfies both such requirements is approximately one-quarter the length of top closure panel 16. The length of the pointed central portion 23b of tuck-in panel 2019 is preferably the same as the length of top closure panel 16.

As shown in FIG. 25, when two blanks 300 are folded into sub-cartons 30 and 32 and joined to form dual carton 52, tuck-in flaps 17b may be overlapped to temporarily seal the dual carton. Because central portion 23b of tuck-in portion 2019 is substantially the same length as top closure panel 16, central portion 23b of tuck-in flaps 17b of sub-cartons 30 and 32 will extend across the entire top of dual carton 52. The sub-cartons may ba joined by labels 40, 42, and 43, such as those shown in FIG. 26. Tuck-in flaps 17a may be joined by releasable adhesive or by a label similar to the above-mentioned labels.

The tuck-in flap 17c of blank 400 shown in FIG. 26 is substantially the same as that of blank 300, except for an additional tuck-in extension 2020 extending from central portion 23b of tuck-in panel 2019. Tuck-in extension 2020 may be joined to tuck-in panel 2019 along perforated line 25 to facilitate later removal. As shown in FIG. 27, when two blanks 400 are folded into sub-cartons 30 and 32 and joined to form dual carton 54, tuck-in extension 2020 may be tucked between exterior wall 13, and the cigarette packs which are contained in the completed carton. Such tucking is accomplished by folding tuck-in flaps 17c of cartons 30 and 32 such that tuck-in panel 2019 is positioned beneath top closure panel 16, so that extension 2020 is adjacent the top of exterior panel 13. Each tuck-in flap 17c thus resembles the short lap flap of a standard cigarette carton, so that neither tuck-in flap 17c has a long portion which may be snagged by the hold-down guide for the shorter lap flap. Sub-cartons 30 and 32 are preferably joined by labels 40, 42, and 43, such as those shown in FIG. 23. Tuck-in flaps 17c are temporarily joined to close dual carton 54 by applying a label similar to the above-memtioned labels (not shown) across the tops of the flaps.

As shown in FIGS. 30, 31, and 33, the tuck- in flaps of dual cartons 50, 52, and 54 resemble conventional lap flaps of a cigarette carton at the end of the carton which leads into the tax-stamping machine, after the plow of the tax-stamping machine has opened the lapped or otherwise temporarily sealed tuck- in flaps. Thus, once the flaps are folded substantially parallel to exterior walls 13, the tapered portion encountering hold-down guide 632 is held down so that the longer portion of tuck-in portion 2019 will be sufficiently held flat against exterior wall 13. As shown in FIG. 32, horizontal portion 633 holds down the short section of tapered tuck-in portion 2019, as if the short section were a short lap flap, so that once the longer portion passes through hold-down guide 632, the tuck-in portion will be flat against exterior wall 13 and will not be snagged against vertical portion 637.

Dual carton 2050 of FIG. 30, formed from blanks such as blank 200 or blank 500, is shown after previously overlapped tuck-in flaps 17a have been plowed open to apply a tax stamp to the ends of cigarette packs 36 in the carton. Carton 2050 may be used in a tax-stamping machine in which the hold-down guide for the shorter lap flap of a conventional carton is on the right side of the machine. In such a machine, the short flap of the conventional carton must lead into the machine on the right side. Dual carton 2050 enters a tax-stamping machine with an initially short flap on the right side of the carton. The flap is short for a sufficient width of tuck-in panel 2018 so that once tuck-in panel 2018 becomes wider, tuck-in flap 17a

will have been held down long enough for the longer portion to remain folded down adjacent exterior wall 13 and consequently be snagged by a hold-down guide. Blanks 200 and 500 would have to be altered if the cartons formed from these blanks are to be passed through a machine in which the hold-down guide for the shorter lap flap is on the left side. Accordingly, end 19a of tuck-in panel 2018 would have to be the longer end and end 21a of tuck-in panel 2018 would have to be the shorter end. If desired, sub-cartons 30 and 32 of carton 2050 may be formed from blanks which would allow for short end 19a of both tuck-in panels 2018 to be positioned at the same end of carton 2050, and long end 21a of both tuck-in panels 2018 to be positioned at the other end of carton 2050.

Dual carton 2052 formed from blanks such as blank 300, is shown in FIG. 31 after previously overlapped flaps 17b have been plowed open to apply a tax stamp to the ends of cigarette packs 36. Carton 2052 may be used in a tax-stamping machine with the hold-down guide for the shorter lap flap either on the right or the left side. Either end of the dual carton 2052 initially presents a short flap on both sides of the carton. Both flaps are short for a sufficient width of tuck-in panel 2019 so that once tuck-in panel 2019 becomes wider, tuck-in flap 17b will have been held down long enough for the longer portion to remain folded down adjacent exterior wall 13 and not move away from exterior wall 13 and consequently be snagged by a hold-down guide.

Although carton 2052 may be preferable to carton 2050 because it is not orientation specific, carton 2052 allows less time for flaps 17b to be held down to clear the hold-down guide without snagging the longer portion of flap. Tuck-in flaps 17a widen more gradually than tuck-in flaps 17b and the wider flap trails into the machine at the end, once the flaps are almost certainly held down well enough so that snagging will not occur. However, carton 2052 may still be preferable, aesthetically, because of its symmetry.

Flaps 17c of carton 2054 (FIG. 33) may be folded to most closely resemble a conventional cigarette carton having lap flaps. As shown in FIG. 33, one flap, here tuck-in flap 17c of sub-carton 32, may folded such that tuck-in extension 2020 is positioned between exterior wall 13 and cigarette packs 36. The folded flap thus has substantially the same dimension as the shorter lap flap of a conventional carton having lap flaps. This flap may later be unfolded and tucked into sub-carton 32. Tuck-in flap 17c of sub-carton 30 may additionally or alternatively be folded such that tuck-in extension 2020 is positioned between exterior wall 13 and cigarette packs 36.

After a tax step has been applied to the ends of each of cigarette packs 36, tuck-in flaps 17a, 17b, and 17c may be folded into their respective sub-cartons to seal them for distribution to consumers, as shown in FIG. 34. Preferably, a mechanized means for tucking the flaps into the sub-cartons is used, and the longest part of the flap is tucked first, the shorter part following. A label similar to label 40 may be placed over the top closure panels 16 of adjacent sub-cartons 30 and 32 to further join the sub-cartons, or the sub-cartons may be separated by severing any labels which were applied to adjacent coplanar walls of the dual cartons to join the sub-cartons for tax-stamping.

FIG. 35 shows an embodiment in which two sub-cartons are joined together to form a dual carton by a sticker which does not adhere to an external surface of either sub-carton.

Two sub-cartons 30 and 32 are positioned for attachment as a dual sub-carton unit. Folded sub-carton blanks 30 and 32 should preferably be identical. Folded sub-cartons 32 has been rotated 180° with respect to sub-carton 2′ so that front wall 10′ abuts front wall 10. Top flaps 4, 4′ have been folded back away from the tops of the five cigarette packs in the sub-cartons.

In constructing the dual carton from folded blanks, the side panels 20b and 22b of each sub-carton blank must first be folded against the side walls of the two cigarette packs at the ends of each 1x5 pack group. Then, a slip-lock insert 26 with two gummed surfaces is placed over and adhered to side panels 20b and 22b at each end of the dual half-carton unit. In other words, at one end, an insert is placed over and adhered to side panel 20b and side panel 22b′ while, at the other end, an insert is placed over and adhered to side panel 22b and panel 20b′. The slip-lock insert will adhere to the side flaps by virtue of the tacky surfaces of the insert.

Then, at each end of the dual carton, side panels 20a and 22a are folded against the sides of the 1x5 pack units, releasably adhered to the slip-lock inserts by the releasable adhesive and permanently adhered by other means to side panels 20b and 22b and to bottom tabs 24 and 26. This permanent adhering of side panels 20a and 22a at each end of the dual sub-carton unit to side panels 20b and 22b and to bottom tabs 24 and 26 is typically done with permanent glue but may be accomplished with any other known means, including tape or other permanent adhesives. However, the permanent adhesive must be placed above and below the slip-lock insert so that the adhesive glues side panels 20a and 22a only to the side and bottom flaps but not to the slip-lock insert 260. The slip-lock insert 260 remains firmly in position by virtue of its own tacky surfaces. Adhering of the slip-lock inserts 260 to the side walls by means other than the tacky surfaces of the slip-lock inserts will undesirably prevent the slip-lock inserts from being subsequently detached.

On the resulting completed dual carton, one gummed slip-lock insert rests between and adheres to the side panels making up the side wall at each end

of each sub-carton. The tacky adhesive on both sides of the inserts serves the purposes of securing the slip-lock inserts to the two sub-cartons and of thereby securing the two sub-cartons one to another to form a dual carton -- i.e., a full carton structure.

When two cartons, each containing five 20 cigarette packs in a 1x5 pack side-by-side configuration, are securely adhered and paired together in this fashion, a full carton containing ten cigarette packs in the standard 2x5 pack carton configuration is formed. These two sub-cartons may then be tax-stamped together as a single 2x5 pack unit in existing tax-stamping machines. After tax stamping, at the retail level, a consumer has the option of purchasing the two sub-cartons as a full ten-pack carton of cigarettes or of separating the two sub-cartons by pulling them apart, and purchasing only one five-pack sub-carton.

Two sub-cartons may be joined together to form a dual carton according to the invention by joining their lid flaps together, as shown in FIGS. 36 and 37, in which the sub-cartons have lap lids, the lower flap 3019 of which extends from the upper edge of the interior wall 11 of the sub-cartons which are superposed in the dual carton. The lower flaps are joined by a sticker in the form of adhesive tape 3050, which has a perforation 3051 along its center line to facilitate separation of the sub-cartons. Upper lid flaps 3018 close the sub-cartons; the tape 3050 may carry adhesive on both faces to which the upper flaps 3018 adhere. A sticker 42 (not shown in FIGS. 36 and 37) is preferably adhered across the bottom walls of the sub-cartons. In this case, the dual carton may be tax stamped as follows, before the inner lid flaps 3018 are taped together.

Before tax-stamping, the inner lid flaps 3018 are folded between the joined cartons so that the tops of the cigarette packs are unobstructed for tax-stamping. After tax-stamping, the sub-cartons are pivoted along the sticker which joins them, so that flaps 3018 may be removed from between the superposed interior walls 11, and folded over the tops of the sub-cartons to be adhered together with tape 3050.

Two sub-cartons may be joined together to form a dual carton according to the invention at the upper regions of the superposed walls, in addition to stickers 42 across the top, middle or bottom walls. The superposed walls may be joined by adhesive or double sided adhesive tape or stickers, or by a strip of single sided adhesive tape adhered to the upper margins of the interior faces of the walls.

In a preferred embodiment of such a dual carton shown in Fig. 38, the sub-cartons 30 and 32 are joined by areas of adhesive 4050 along the interior wall of one sub-carton 30. The lid flap 17 of the other sub-carton 32 is adhered to the lid flap of the first sub-carton 30 by areas of adhesive 4050′, aligned with the areas of adhesive 4050 in the superposed walls. When the sub-cartons 30, 32 have been separated, the adhesive 4050 remains on the interior wall 11 of the first sub-carton 30 and may be used to seal that sub-carton. Likewise, the adhesive 4050′ remains on lid flap 17 of the other sub-carton 32 and may be used to seal that sub-carton.

The stickers used to join sub-cartons to form multiple cartons as to the invention may be rectangular in shape, or may be of any other desired shape such as circular, triangular or square. Advantageously, however, they are narrower in the center than at their ends, as shown in FIG. 39. Sticker 44 has a cutaway 45, narrowing the central regions. The narrow region of the sticker overlies the gap between adjacent sub-cartons. The stickers may be of any desired size; they will normally be smaller than the walls to which they are stuck.

Claims

1. A multiple unit cigarette carton comprising at least two sub-cartons (30,32), the multiple unit carton being dimensioned to pass through a conventional tobacco tax-stamp applicator, adjacent sub-cartons being frangibly connected together (40)(42)(43)(31)(50) (52)(3050)(1040)(1050) for passage through a tobacco tax-stamp applicator and subsequent separation, the frangible connection comprising at least one sticker (260)(40)(42)(43)(3050)(1040)(1050) adhered across at least one pair of walls, one wall of the pair being from each sub-carton.

2. A multiple unit cigarette carton according to claim 1 for packaging a first number of cigarette packs and of dimensions compatible with commercially available tax-stamping machinery used in the automated processing of cigarette cartons, each cigarette pack having a pair of opposed long walls and a pair of opposed short walls, the multiple unit cigarette carton comprising:

a first sub-carton (30) having four substantially vertical walls (10,12,20,22), a top wall (16), and a bottom wall (14), the four substantially vertical walls including a front wall (10), a rear wall (12) substantially parallel and spaced from the interior front wall, and the first (20) and second (22) exterior side walls connecting juxtaposed vertical edges of the front wall and the rear wall, in which the rear wall has an extension (16) along the top edge thereof, the extension being folded substantially perpendicular to the rear wall and extending toward the front wall, to form the top wall, the widths of the front wall and the rear wall being sufficiently wider than a second number of times the width of the long wall of a cigarette pack, and the widths of the side walls being sufficiently wider than a third number of times the width of

the short wall of the cigarette pack so that a fourth number of cigarette packs, equal to the product of the said second number and the said third number, can be positioned inside the first carton with the short walls parallel to the side walls;

a second sub-carton (32) substantially identical to the first carton, the first and second sub-cartons positioned adjacent one another with the front wall of the first sub-carton coextensive with the front wall of the second sub-carton such that the borders of the front walls are aligned; and at least one sticker comprising a substantially flat carrier (56)(58) bearing adhesive on at least part of each side of the carrier, the sticker being positioned between the front walls of the first and second sub-cartons with the adhesive in contact with the front walls to secure the sub-cartons in position adjacent one another such that the borders of the front walls are aligned, in which the first side of the carrier faces the first sub-carton and the second side of the carrier faces the second sub-carton, and in which the dual cigarette carton is dimensioned to contain twice the said fourth number of cigarette packs, which is equal to the said first number of cigarette packs.

3. A multiple unit cigarette carton according to claim 2, in which the said second number is five.

4. A multiple unit cigarette carton according to claim 2 or 3, in which the third number is one.

5. A multiple unit cigarette carton according to claim 2, 3 or 4, in which one half of the carrier (54) bears adhesive (56) only on the said first side and the remaining half of the carrier bears adhesive only on the said second side.

6. A multiple unit cigarette carton according to claim 5, in which the carrier (54) has a line of weakness (51) along the border of the said two halves.

7. A multiple unit cigarette carton according to claim 6 in which the line of weakness (51) is a line of perforations.

8. A multiple unit cigarette carton according to claim 2, 3 or 4, in which the sticker comprises a first carrier (54) a first side of which is directly adhered to the front wall (10) of the first sub-carton (30) and a second carrier (54) a second side of which is directly adhered to the front wall of the second sub-carton (32), and the second side of the first carrier is releasably connected to the first side of the second carrier.

9. A multiple unit cigarette carton according to claim 8, in which the first side of the first carrier (54) and the second side of the second carrier (54) bear permanent adhesive (57) for attachment to the first (30) and second (32) sub-cartons, respectively; and the second side of the first carrier and the first side of the second carrier bear releasable, pressure-sensitive adhesive (58) for attachment of the first and second carriers to each other.

10. A multiple unit cigarette carton according to claim 9, in which the releasable adhesive (58) does not leave a tacky residue upon separation of the first (30) and second (32) sub-cartons.

11. A multiple unit cigarette carton according to any preceding claim, in which a sticker is adhered across at least one pair of exterior walls of respective adjacent sub-cartons (30,32).

12. A multiple unit carton according to any preceding claim in which at least one sticker (40)(42)(43)(1040) carries on its outer face first indicia characteristic of the multiple unit carton, the first indicia extending across the plane of abutment of at least two adjacent sub-cartons (30,32) of the multiple unit carton whereby the first indicia is rendered indecipherable when one of the said at least two sub-cartons is separated from another.

13. A multiple unit carton according to claim 12 in which each sub-carton (30,32) of the multiple unit carton carries second indicia characteristic of itself which is not visible when the sub-cartons are in the form of the multiple unit carton.

14. A multiple unit carton as to claim 13 in which the second indicia are carried on the superposed faces (10) of the sub-cartons (30,32) of the multiple unit carton.

15. A multiple unit carton according to any preceding claim in which the constituent sub-cartons (30,32) have lids, each lid comprising an upper wall 16 extending from an exterior wall 13 of the multiple unit carton and a lid flap (2018)(2019) extending from the edge of the top wall opposite the said exterior wall, the lid flap tapering in the direction parallel to the said edge of the top wall.

16. A multiple unit carton according to claim 15 in which the lid flap 2019 tapers from narrow at each end to wide in the middle.

17. A multiple unit carton according to claim 16 in which tab 2020 extends from the middle of the

free edge of the lid flap 2019.

18. A multiple unit carton according to any preceding claim in which the sticker (260) is adhered between flaps (20b,20b′,22b,22b′) (20a,20a′,22a, 22a′) of respective adjacent walls of adjacent sub-cartons (2, 2′) of the multiple unit carton.

19. A multiple unit carton according to claim 18 in which the sticker (260) carries adhesive on both faces.

20. A multiple unit carton according to any preceding claim in which the sticker (3050) is adhered to lid panels of adjacent sub-cartons of the multiple unit carton.

21. A multiple unit carton according to claim 20 in which the sticker (3050) is adhered to flaps (3019) extending from the upper edges of the superposed walls of the adjacent sub-cartons which in the separated cartons form the inner flap of a lap-type lid.

22. A multiple unit carton according to any of claims 1 to 19 in which the upper regions of the superposed walls (11) of adjacent sub-cartons (30,32) are affixed together with adhesive means (4050).

23. A multiple unit carton according to claim 22 in which the cartons are affixed by a joining strip extending from the inside of one of said superposed walls across the free edges of the said superposed walls and onto the inside of the other of the said superposed walls.

24. A multiple unit carton according to claim 22 in which the said adhesive means comprises first areas of adhesive (4050) on the superposed wall (11) of a first sub-carton (30) and in which the lid of the multiple unit carton is held closed by second areas of adhesive (4050′) on the lid flap (17) of the second sub-carton (32), whereby, when the sub-cartons are separated, the lid flaps (17) of the first (30) and second (32) sub-cartons can be held shut by, respectively, the first (4050) and second (4050′) areas of adhesive.

25. A multiple unit carton according to any preceding claim in which the sticker(440) has a central region narrower than its two-end regions, the sticker being disposed so that its narrow central region overlies a gap between adjacent sub-cartons of the multiple unit carton.

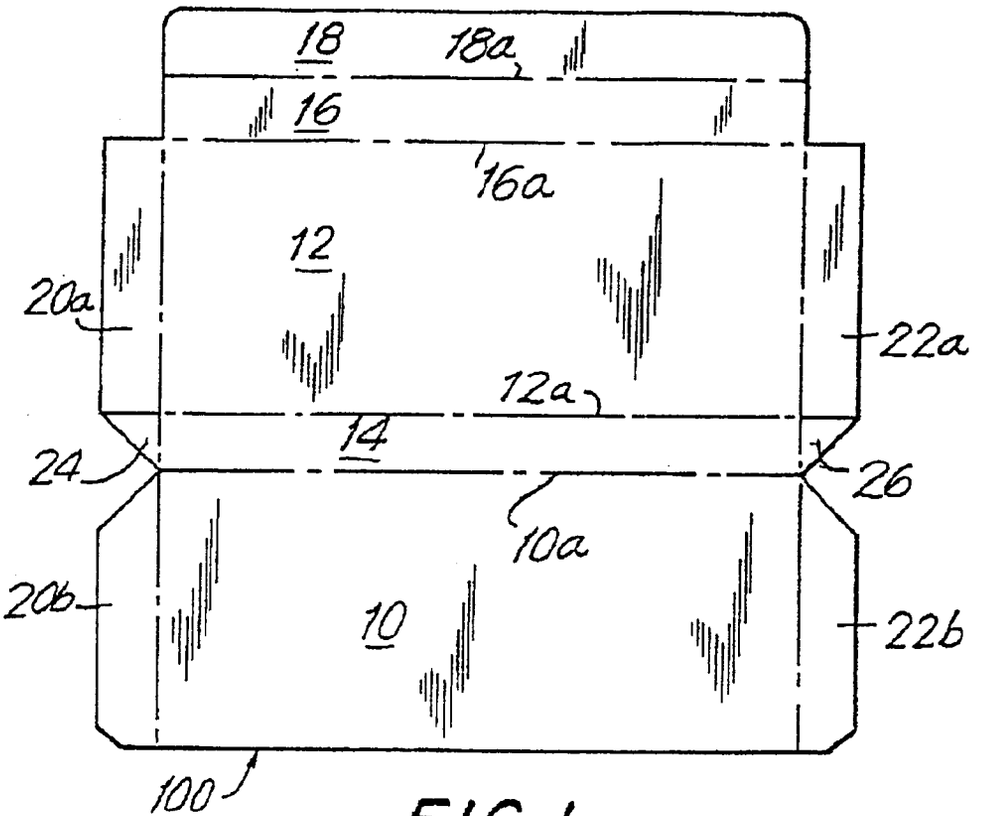
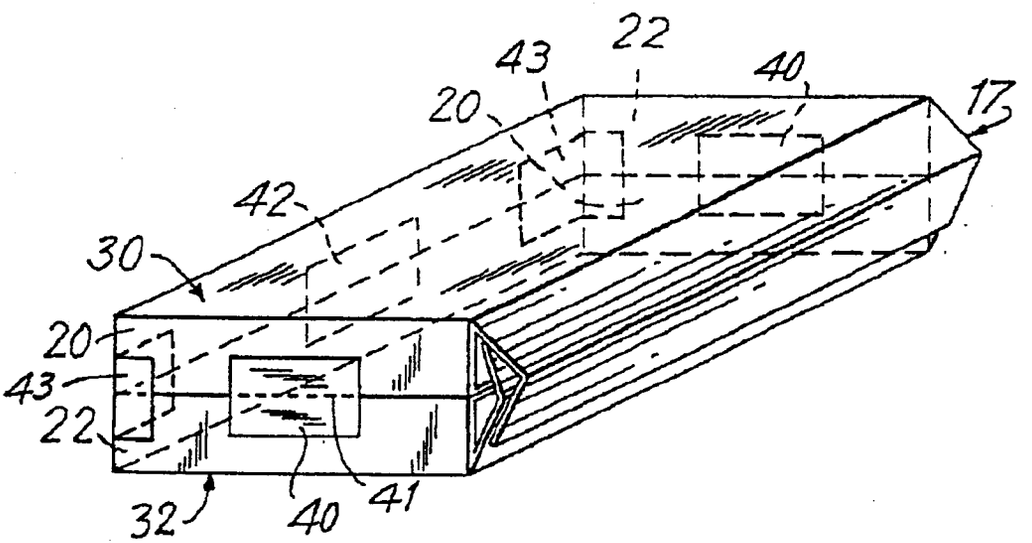

18
18a
16
16a
12
20a
22a
12a
14
24
26
10a
20b
10
22b
100

FIG. 1


22
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17
42
30
20
43
22
32
40
41

FIG. 3

FIG. 2

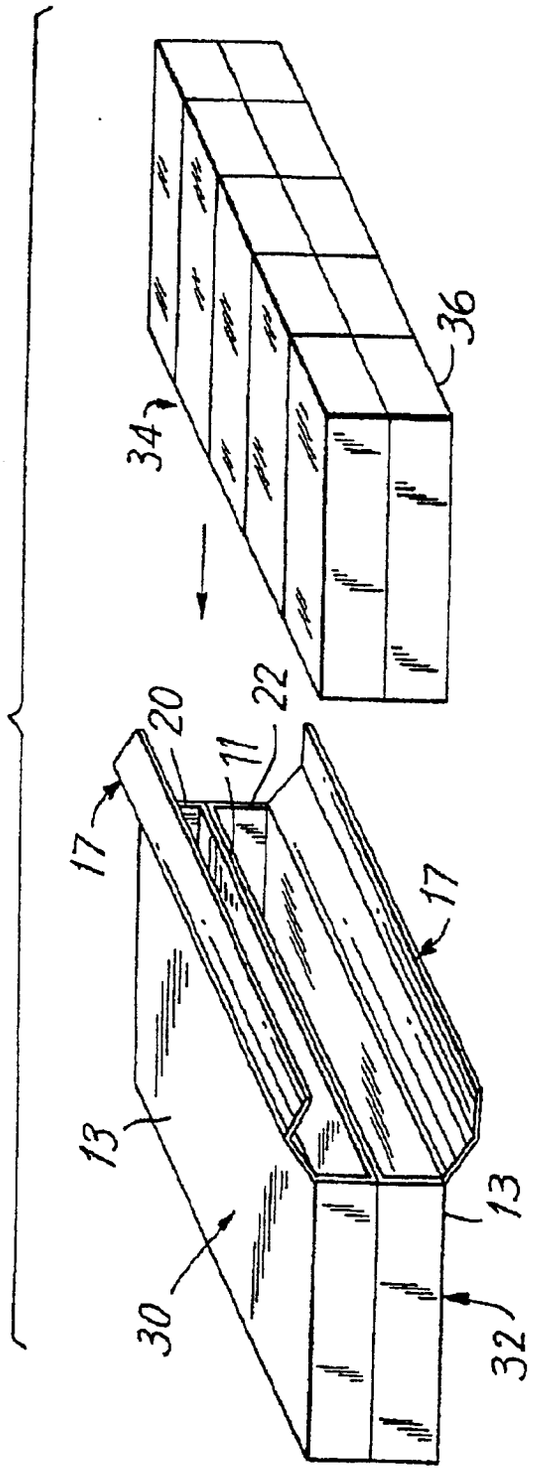


FIG. 4

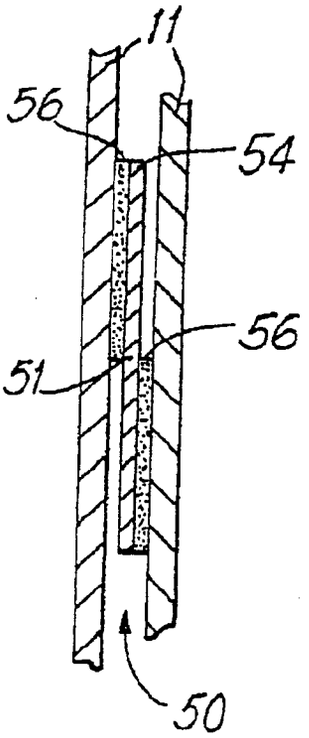
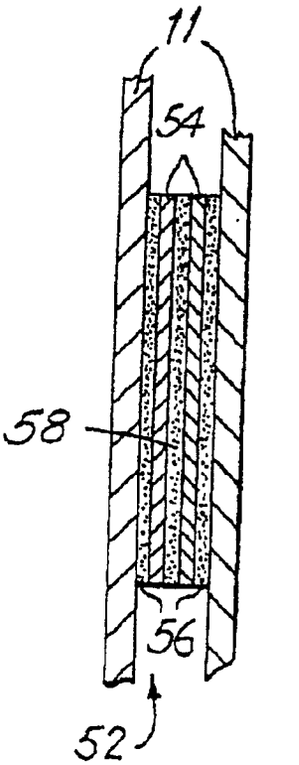


FIG. 5



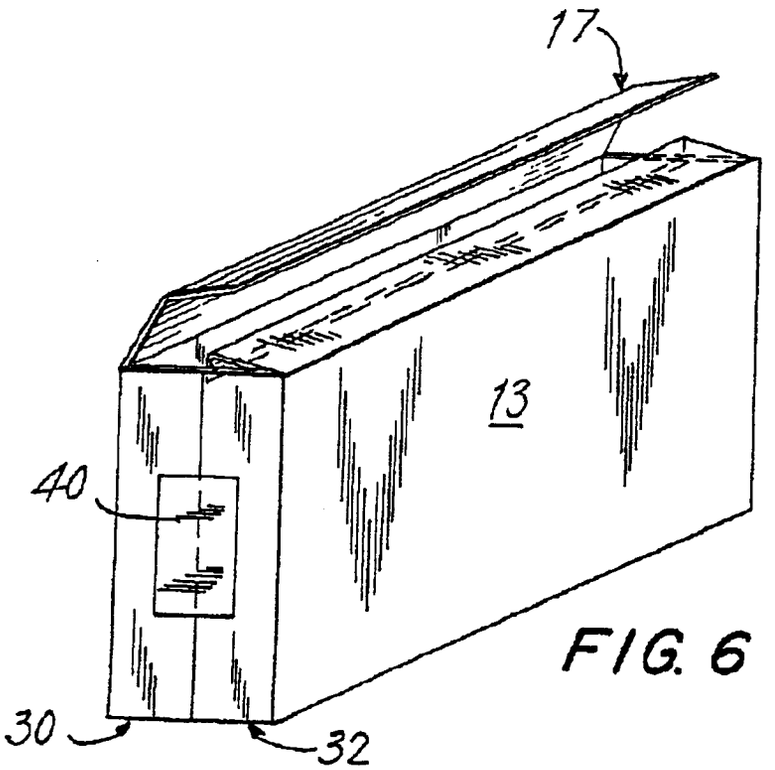


FIG. 6

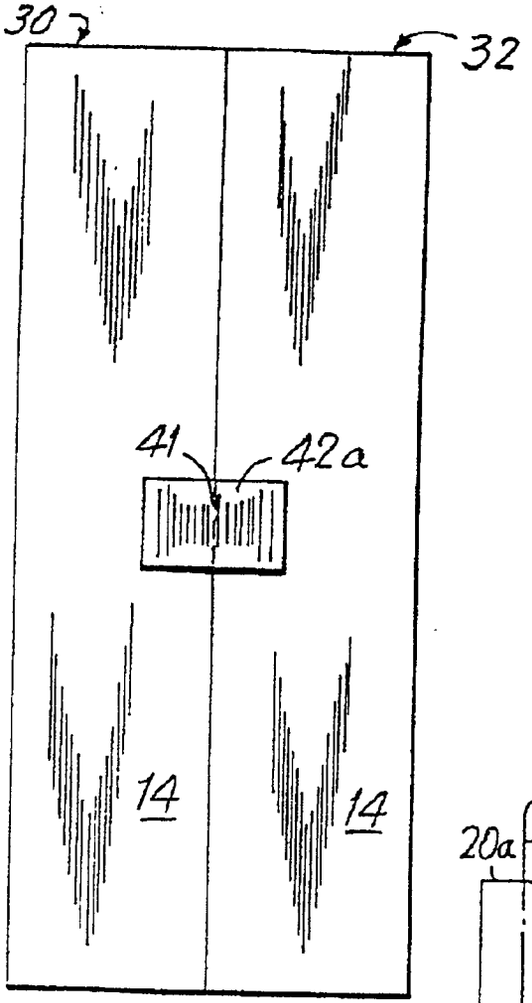
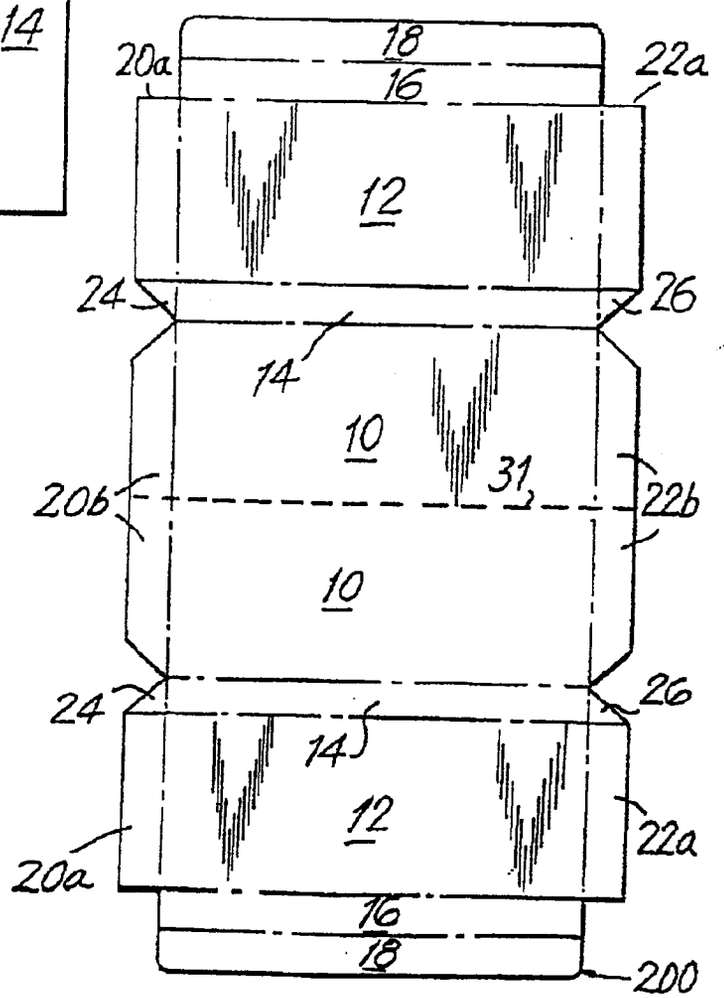

30
32
41
42a
14
14

FIG. 7

FIG. 8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20a
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22a
12
24
26
14
10
31
22b
206
10
24
26
14
12
22a
20a
16
18
200

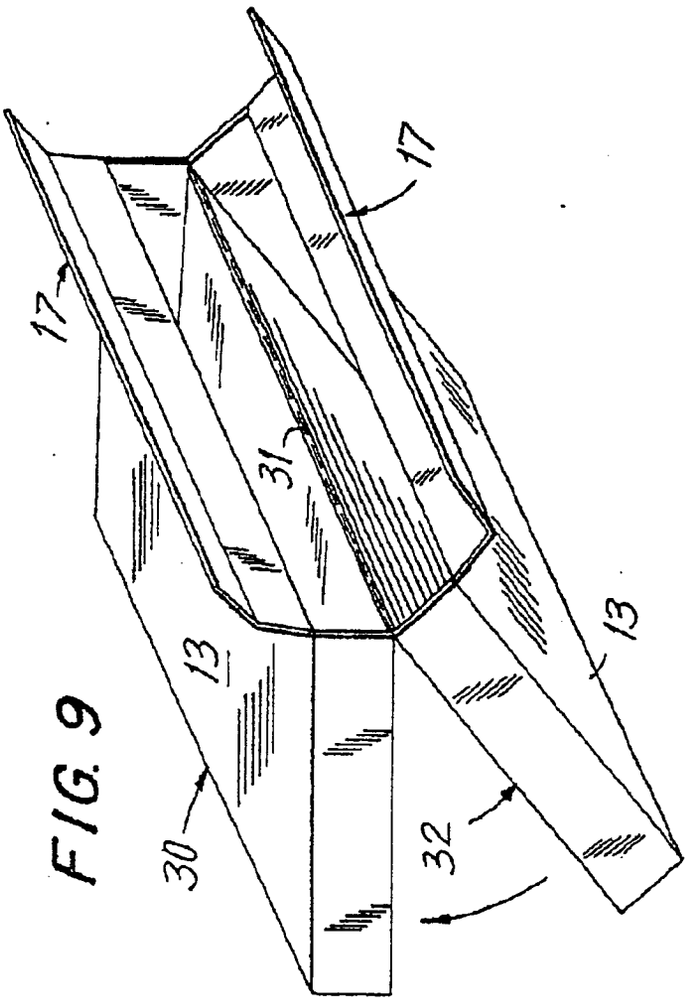


FIG. 9

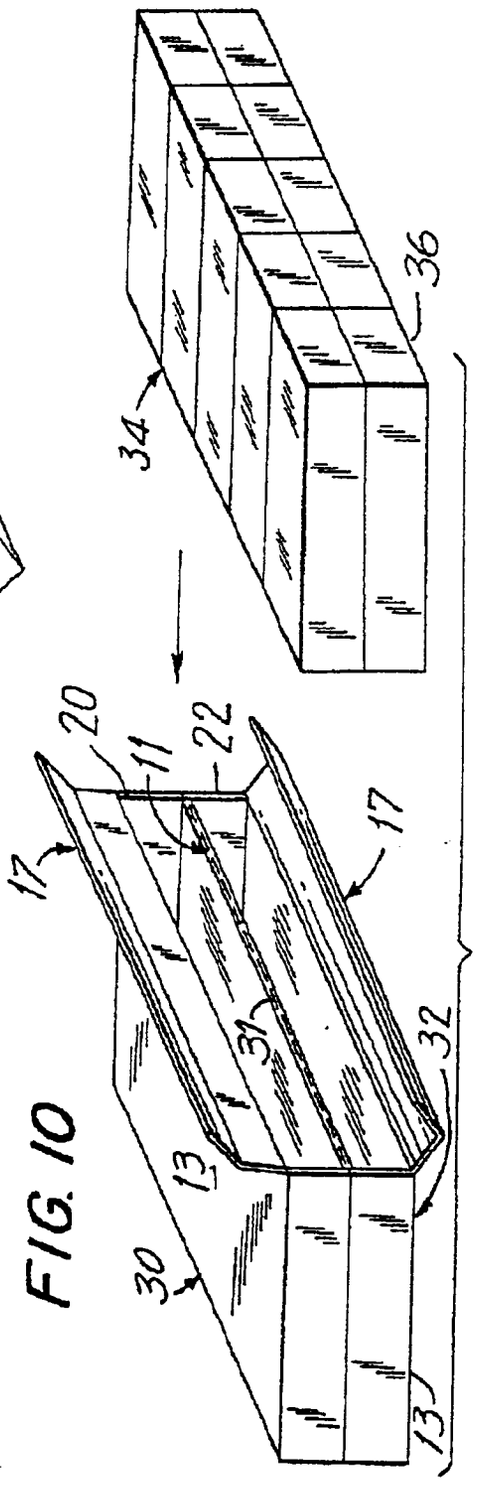


FIG. 10

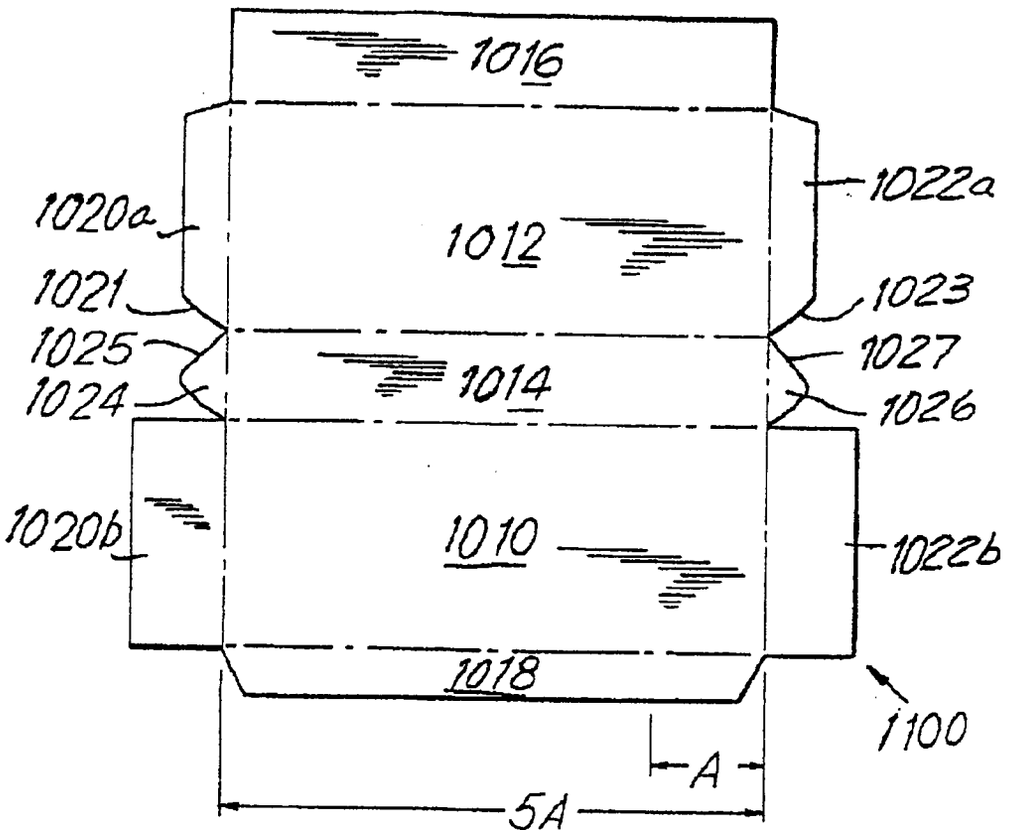
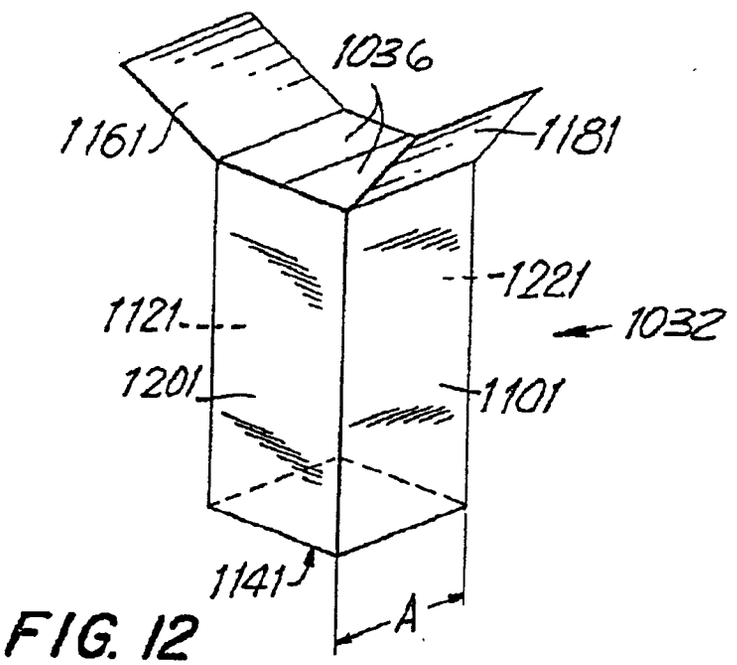

1016
1022a
1020a
1012
1021
1023
1025
1027
1014
1024
1026
1020b
1010
1022b
1018
1100
A
5A

FIG. 11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1121
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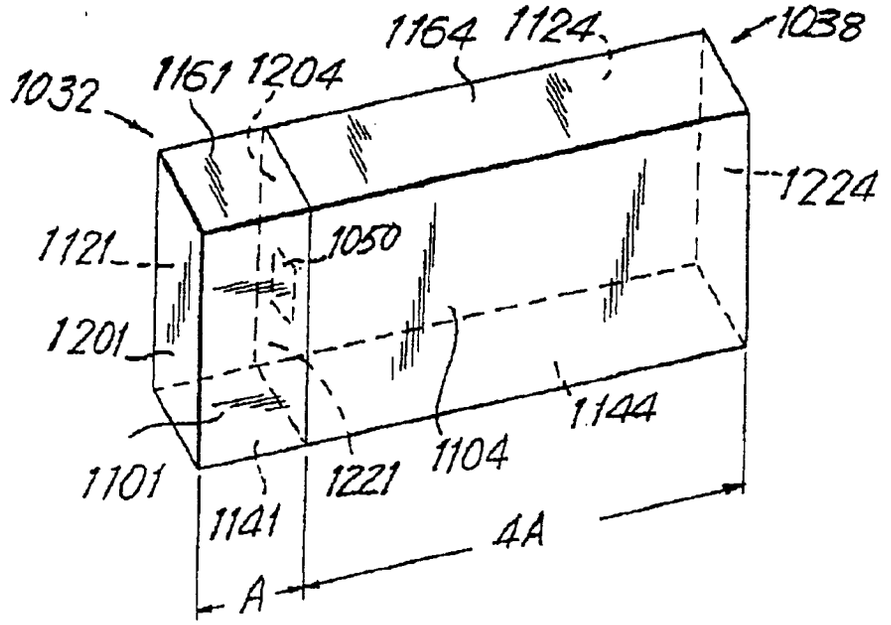
1201
1101
1141
A

FIG. 12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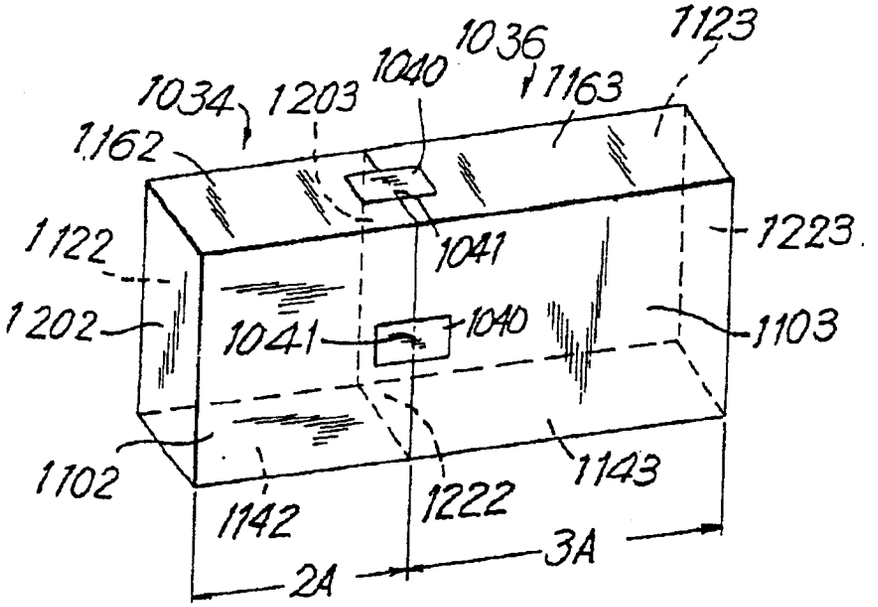
1124
1038
1032
1161
1204
1224
1121
1050
1201
1144
1104
1101
1221
1141
4A
A

FIG. 13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1203
1163
1162
1223
1122
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1103
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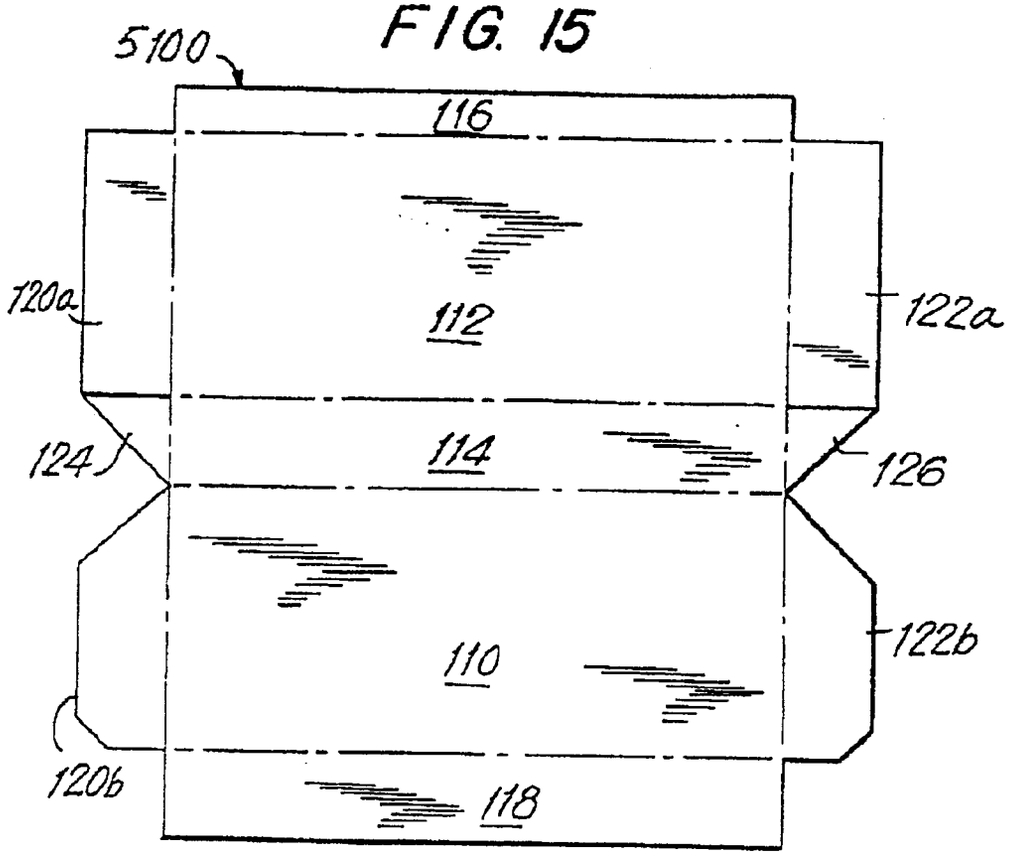
1143
1142
1222
3A
2A

FIG. 14

FIG. 15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122a
124
114
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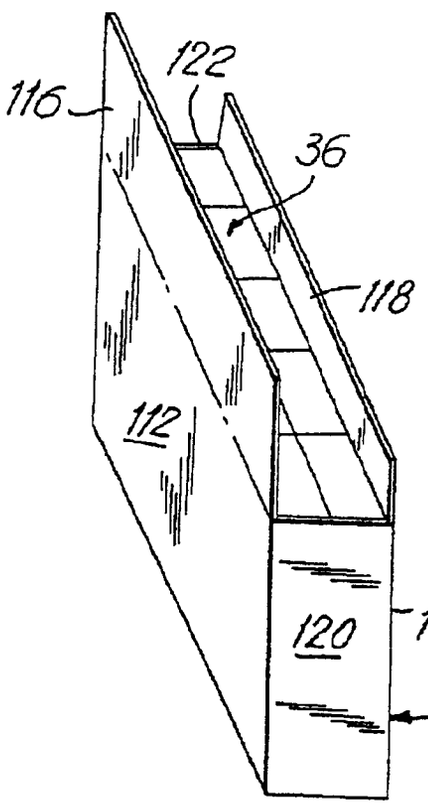
110
122b
120b
118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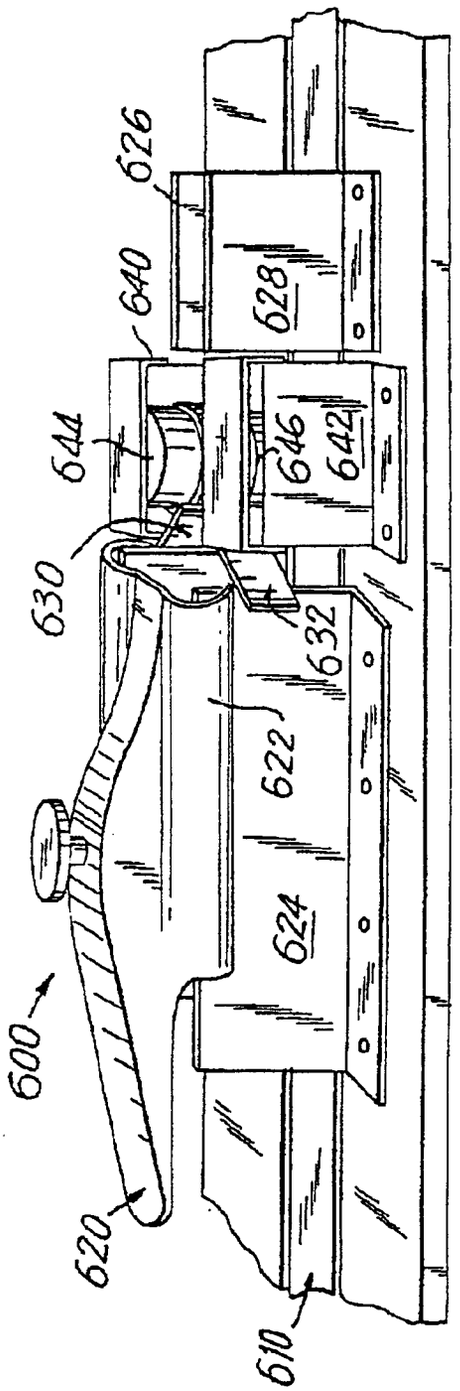
150

FIG. 16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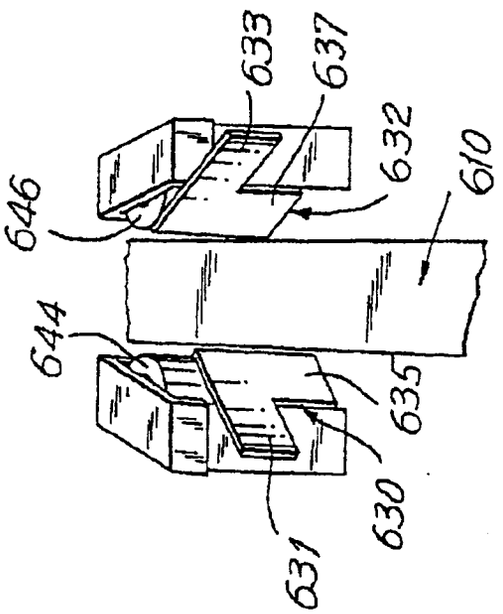
630
632
622
624
600
620
610

FIG. 17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644
635
631
630

FIG. 18

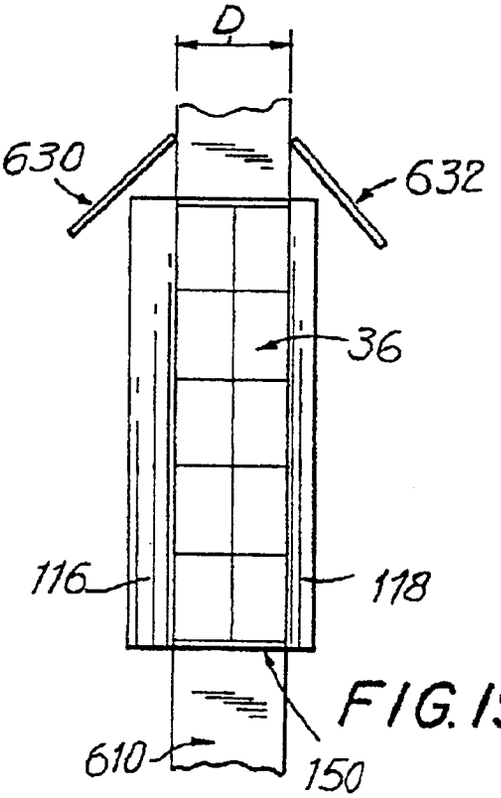


FIG. 19

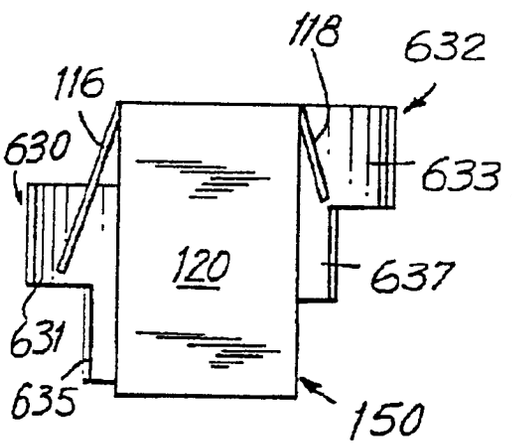


FIG. 20

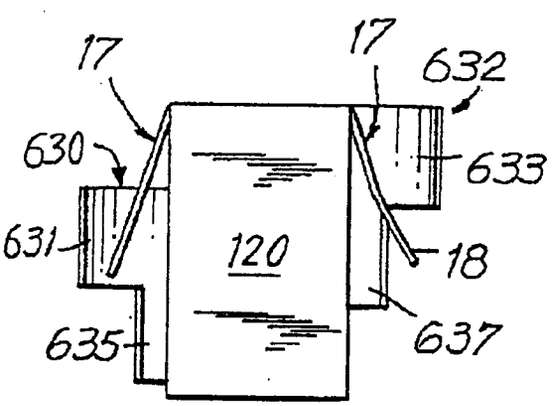
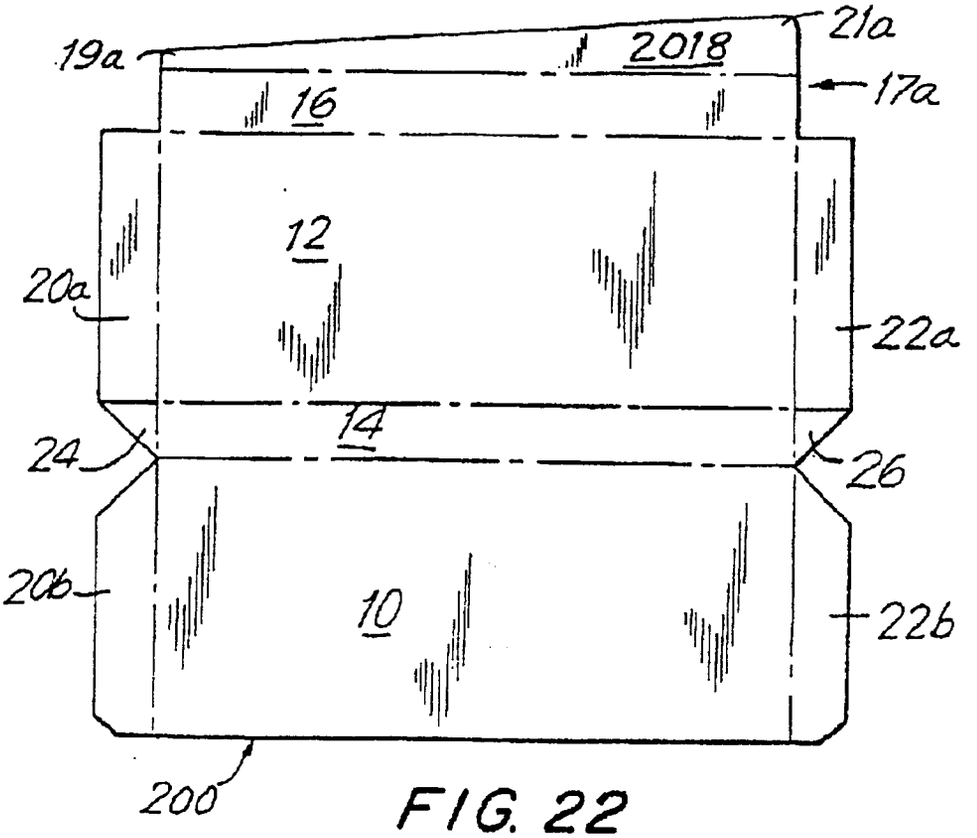


FIG. 21


19a
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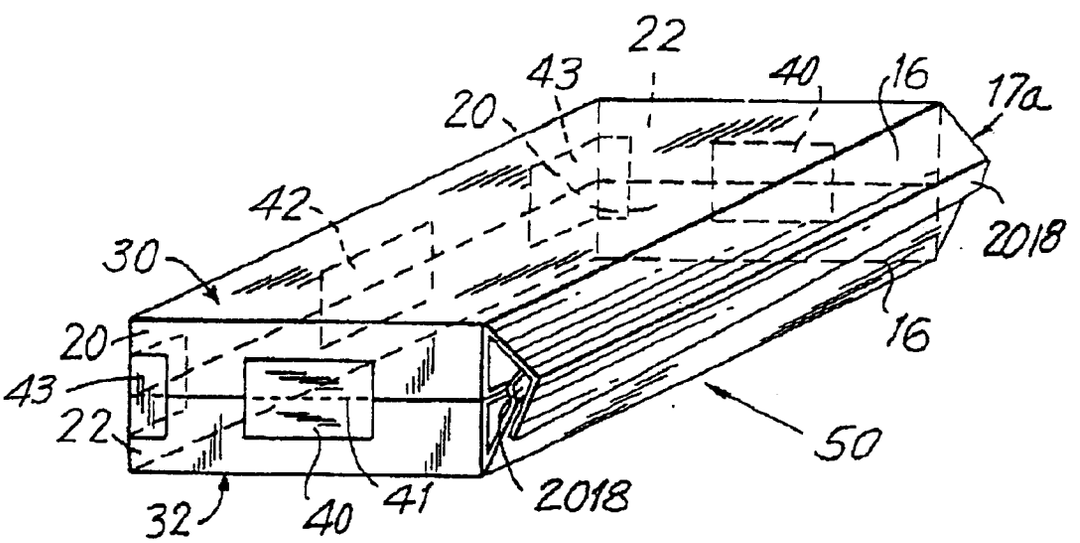
21a
17a
16
12
20a
22a
14
24
26
20b
10
22b
200

FIG. 22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43
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16
17a
20
42
2018
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16
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43
22
50
32
40
41
2018

FIG. 23

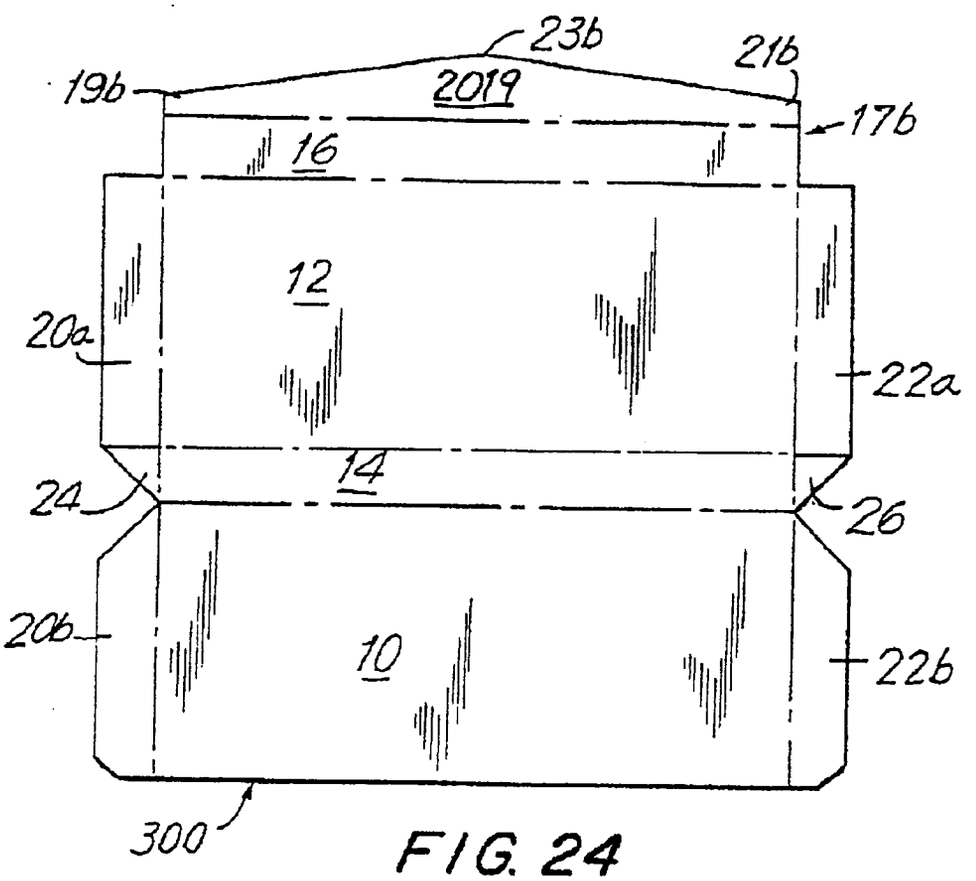
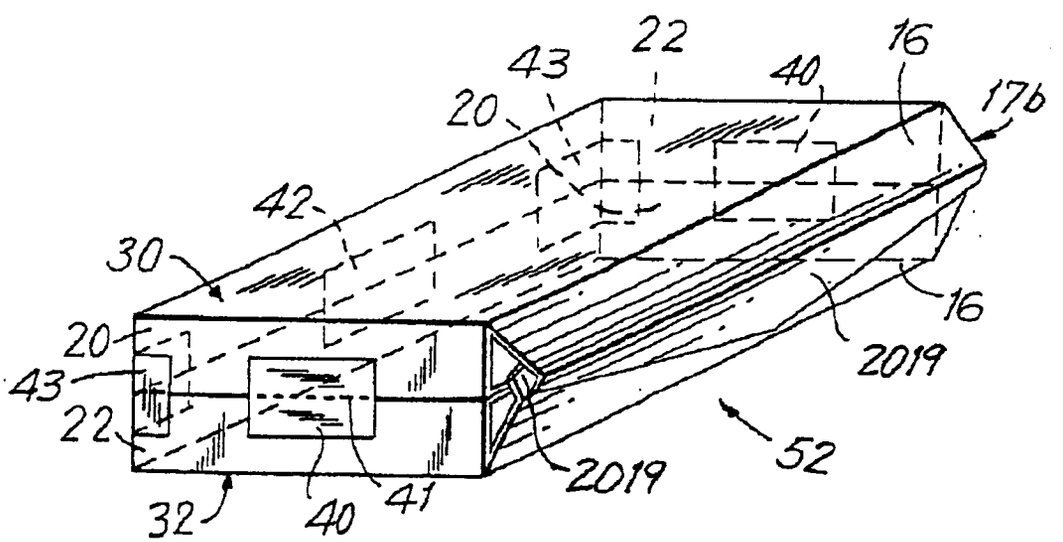

23b
21b
19b
2019
17b
16
12
20a
22a
14
24
26
20b
10
22b
300

FIG. 24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22
52
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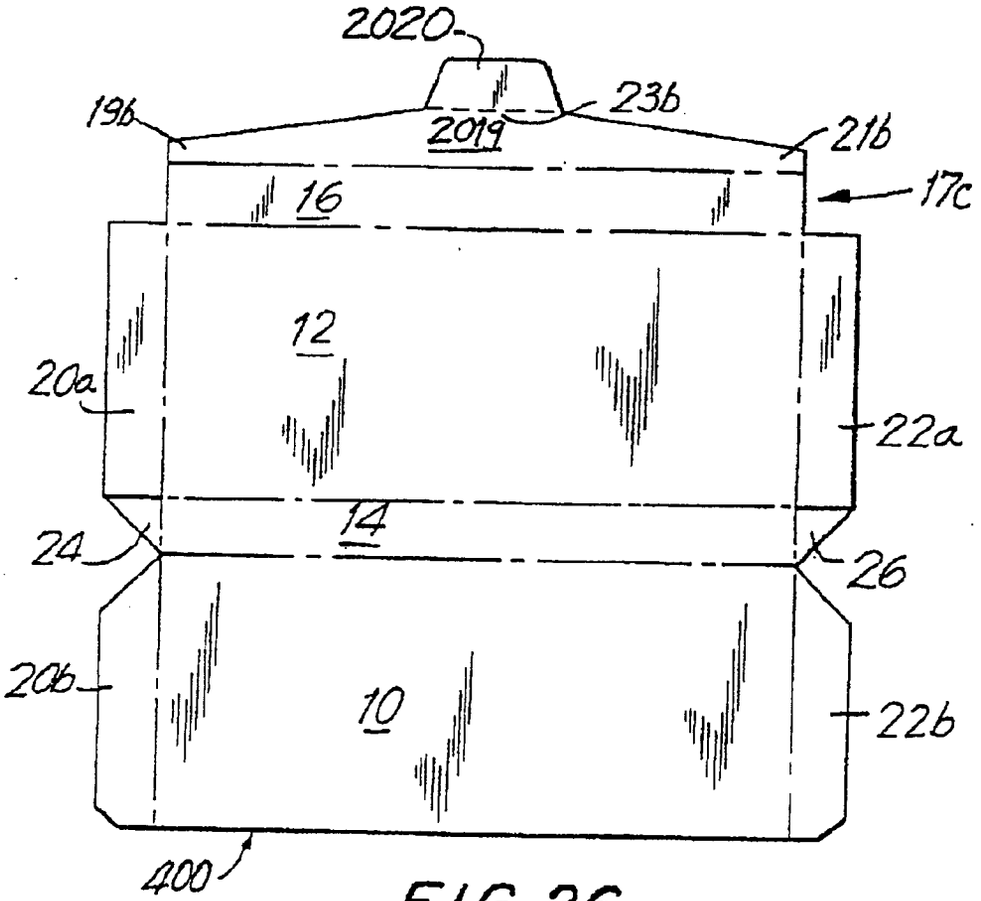
32
40
41

FIG. 25


2020
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23b
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21b
17c
16
12
20a
22a
14
24
26
20b
10
22b
400

FIG. 26

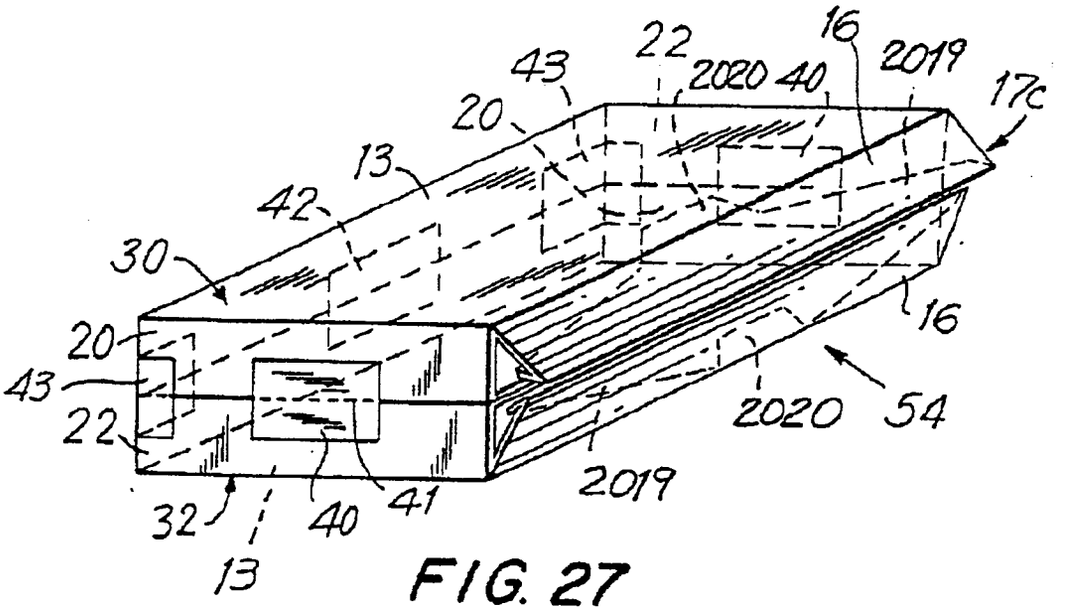
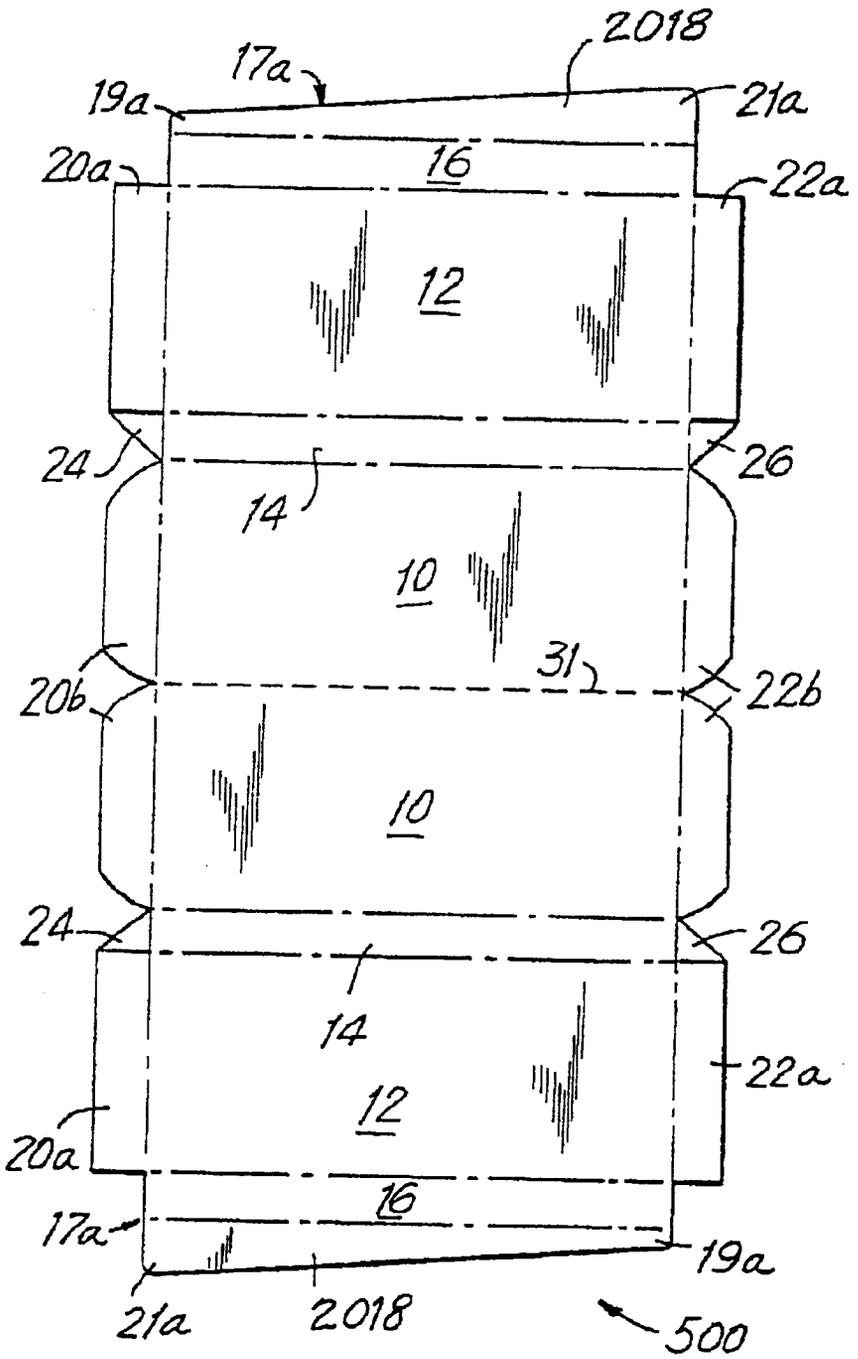

22
16
43
2020
40
2019
17c
20
13
42
30
20
16
43
22
2020
54
2019
32
40
41
13

FIG. 27

FIG. 28


2018
17a
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21a
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20a
22a
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24
26
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22b
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14
22a
12
20a
16
17a
19a
21a
2018
500

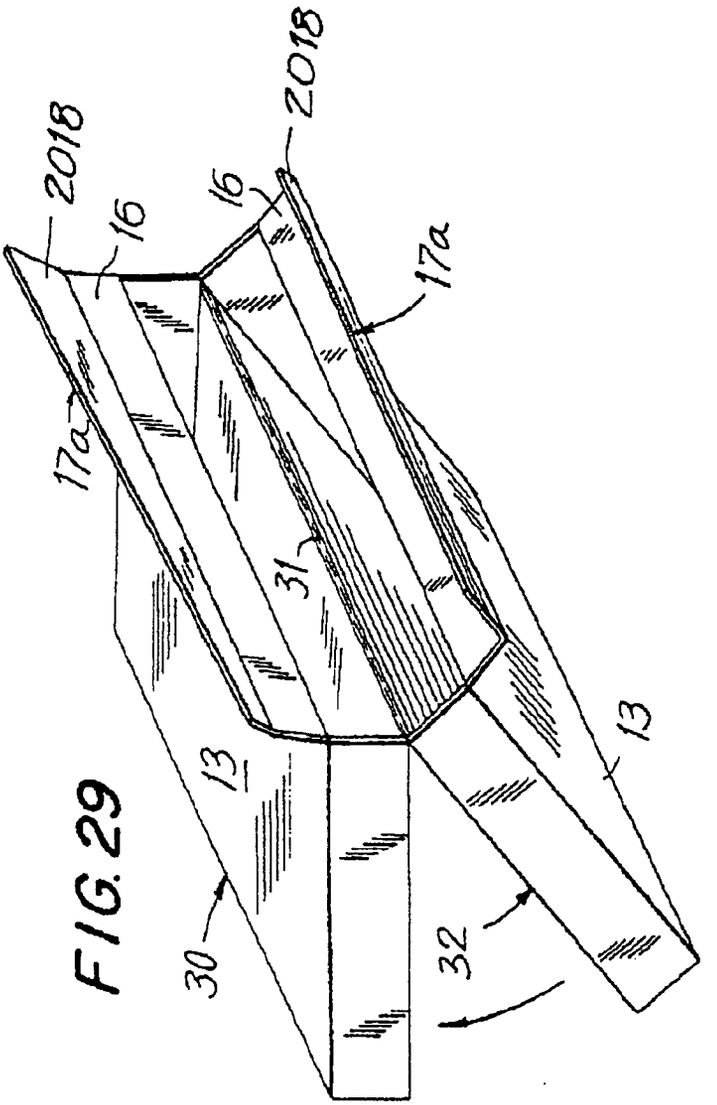
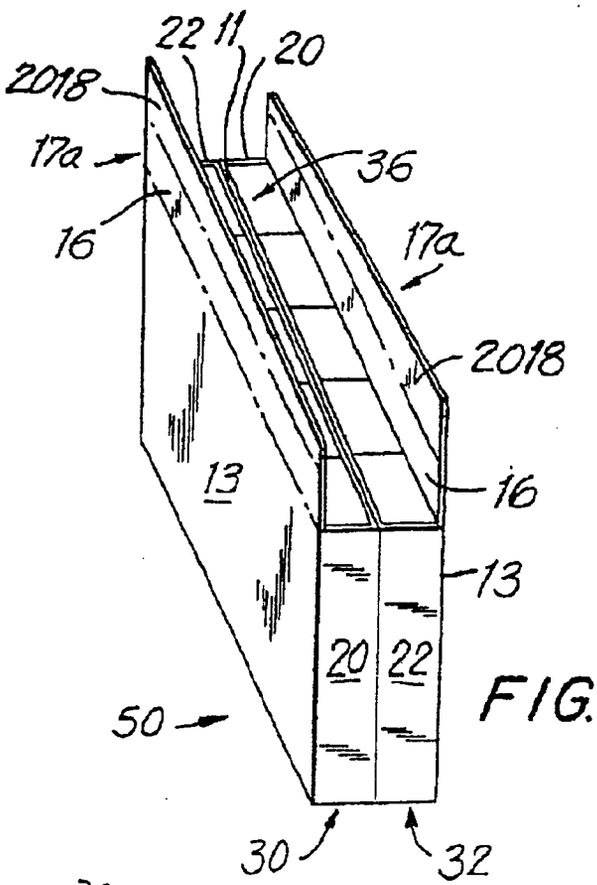


FIG. 29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2018
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17a
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13
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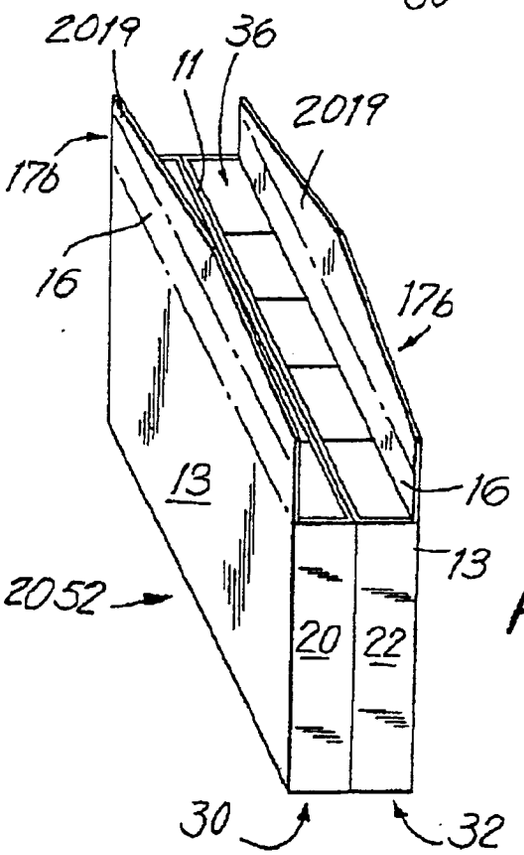
22
50
30
32

FIG. 30


2019
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2019
17b
16
17b
13
16
13
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20
22
30
32

FIG. 31

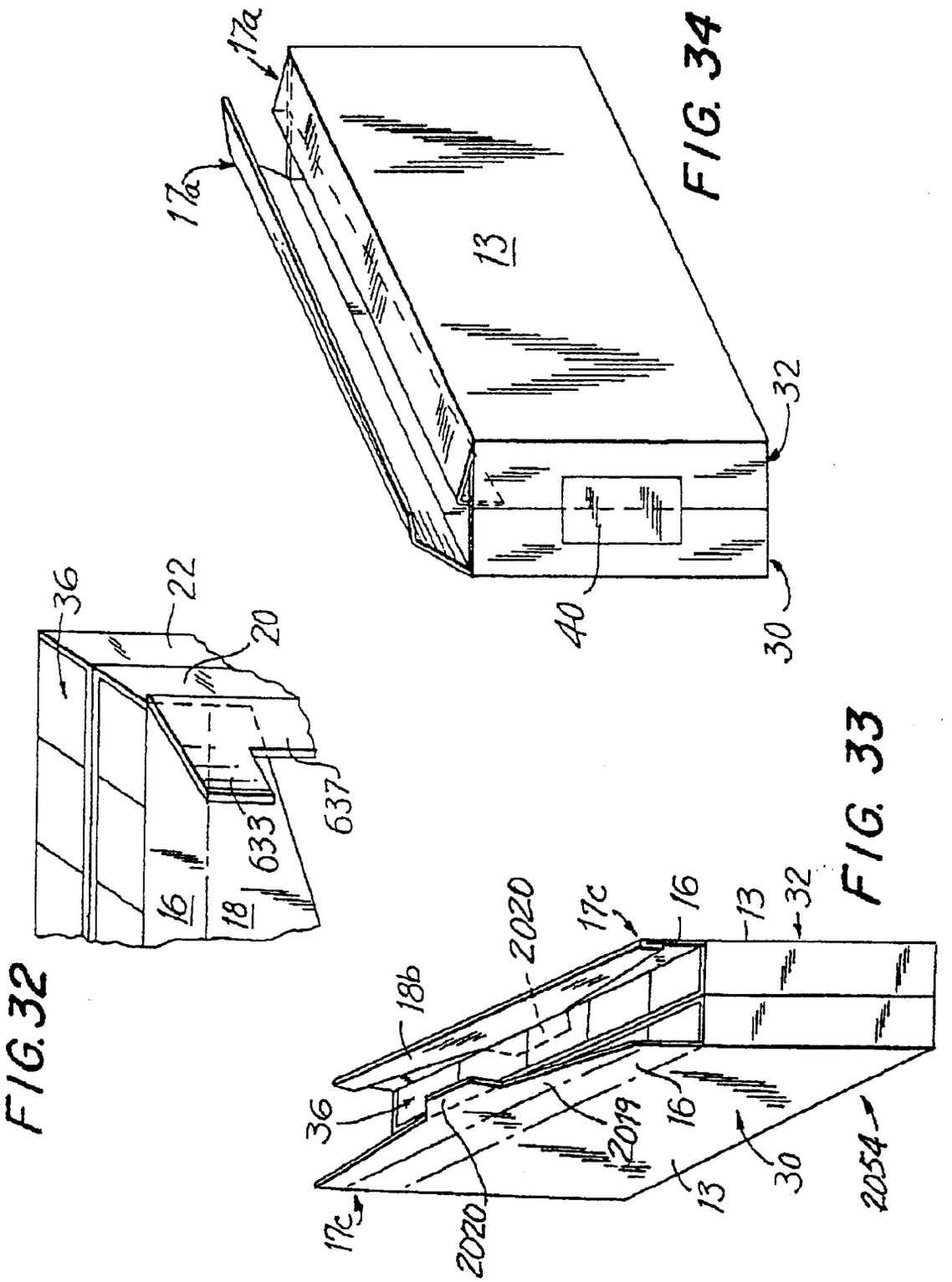

FIG. 34

FIG. 32

FIG. 33

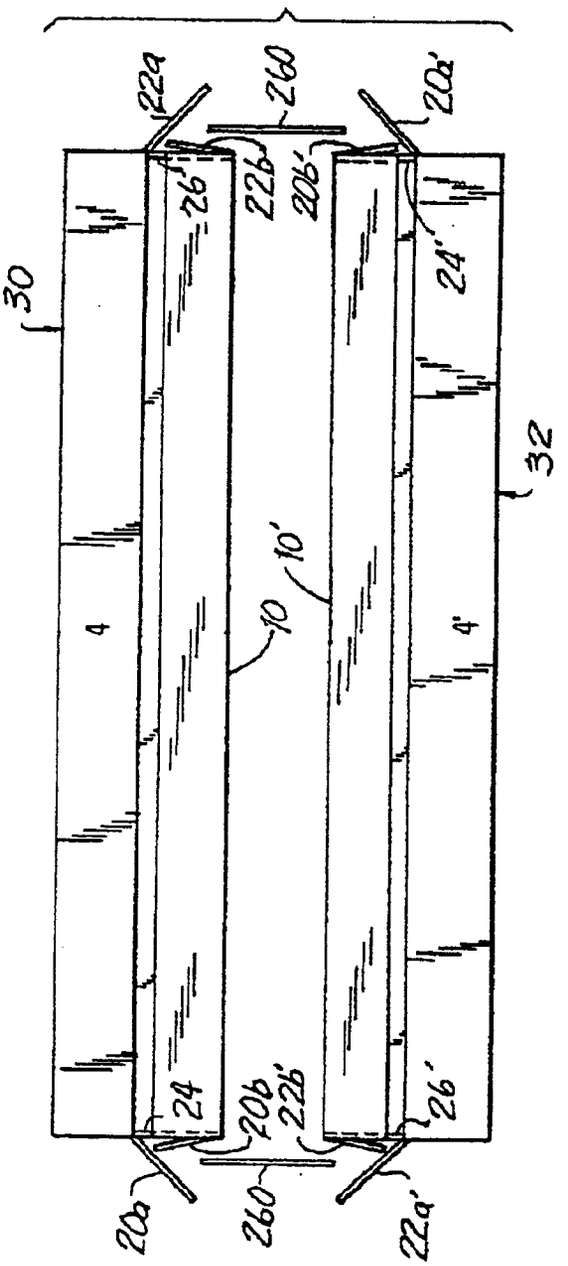

FIG. 35

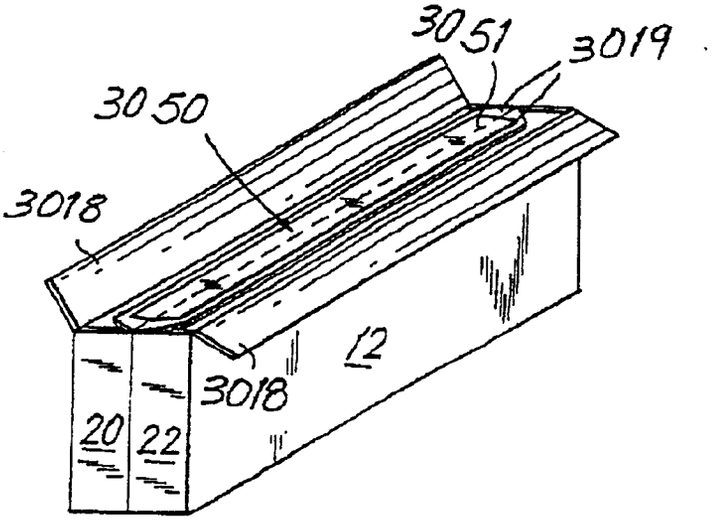

FIG. 36

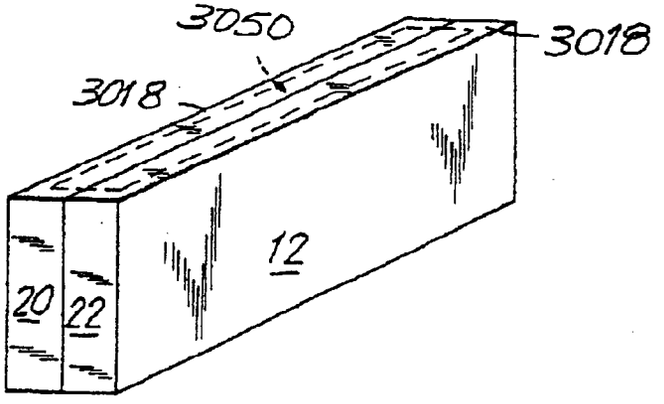

FIG. 37

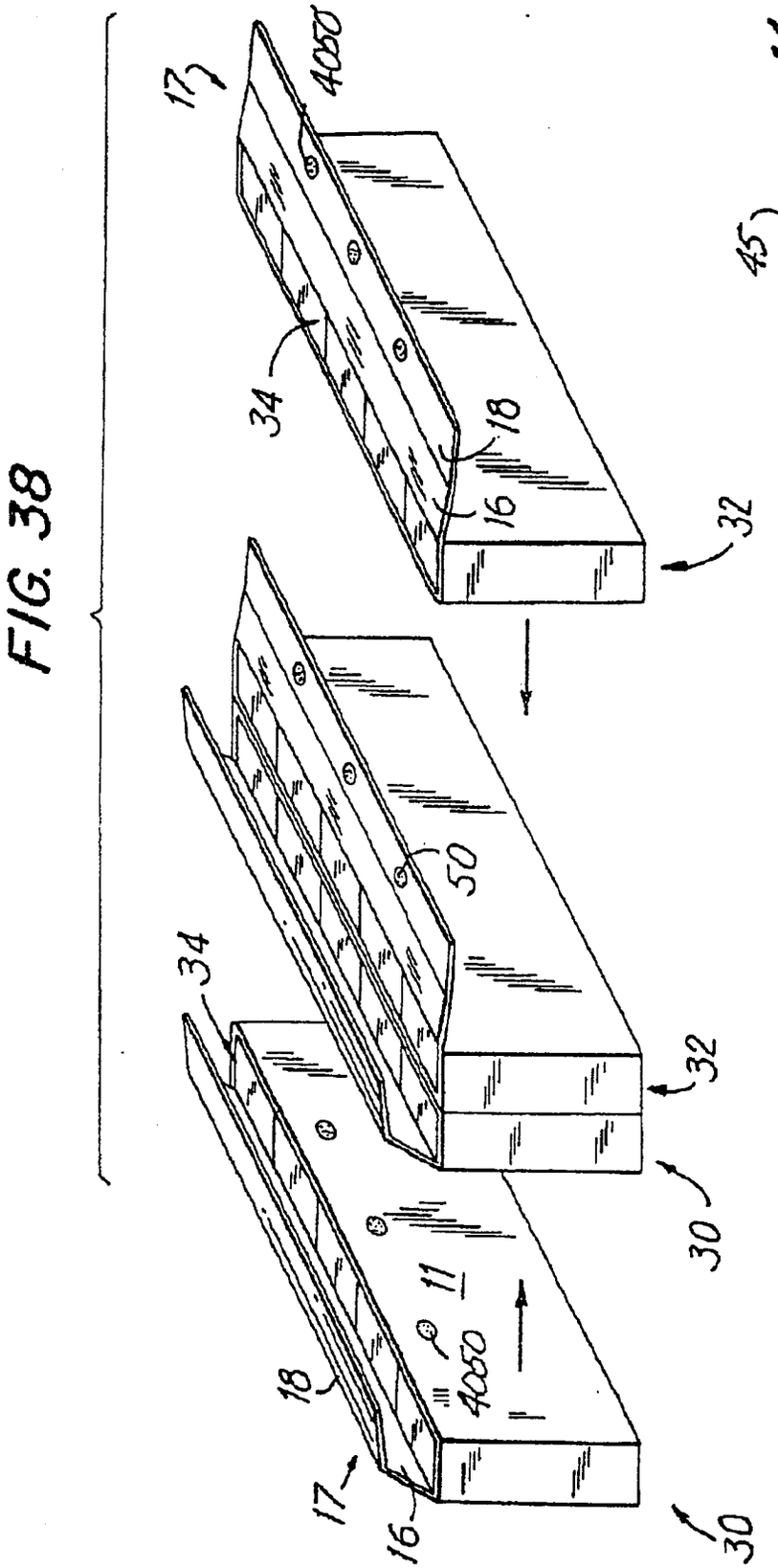

FIG. 38

FIG. 39

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 92 30 9207

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y A	EP-A-0 344 466 (FOCKE) * column 3, line 17 - column 5, line 34; figures *	1,11 3,4,6,7	B65D5/54 B65D85/10
Y A	US-A-2 703 764 (VOGT) * claim 1; figures *	1,11 6	
A	EP-A-0 122 524 (FOCKE) * claims; figures *	1,3,4,22	
A	US-A-2 984 340 (CARMICHAEL) * the whole document *	1,12	
A	GB-A-1 138 998 (GREENE) * claim 1; figures *	2,8-10	
A	US-A-4 669 611 (FLAHERTY) * the whole document *	12-14	
A	US-A-4 738 359 (PHILLIPS) * figures 2,4 *	15	
A	FR-A-2 310 205 (PLASTONA) * figures 8-10 *	16,17	TECHNICAL FIELDS SEARCHED (Int. Cl.5) B65D
A	FR-A-1 429 044 (ERNST) * page 2, left column, line 33 - page 2, right column, line 23; figures 1-5 *	18-21	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	29 JANUARY 1993	NEWELL P.G.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
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P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

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