METHOD OF PACKAGING CIGARETTES AND PACKAGE

A cigarette package 100 is disclosed formed by the steps of placing group of cigarettes in a foil wrapper, forming a foil bundle 150, and placing the foil bundle with an inner frame 150, wherein the foil bundle and inner frame form a framed bundle 140. The framed bundle is inserted through an open end 162 of an outer box 160 to fill the outer box, and the end flaps of the outer box are closed to form the cigarette package.
METHOD OF PACKAGING CIGARETTES AND PACKAGE

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims priority to U.S. Provisional Patent Application No. 60/602,880, filed August 20, 2004, which is incorporated herein by reference in its entirety.

BACKGROUND

Cigarette packages perform the functions of containing a pre-selected bundle of cigarettes and protecting the cigarettes from mechanical and environmental damage. In addition, a package protects the freshness of the cigarettes.

Cigarette packages are typically made from paper into the so-called soft package that tears open on a top panel, and from paperboard into the so-called hard package that typically includes an integral reclosable lid. Both types of packages generally include a foil or foil laminate wrapped around the cigarettes, and an additional sealed plastic film, typically polypropylene, wrapper around the outside of the package. The foil wrapper and outer plastic film are included to maintain the freshness of the packaged cigarettes.

SUMMARY

In accordance with one embodiment, a method of packing cigarettes, comprises (a) forming a foil bundle by placing a group of cigarettes in a foil wrapper, (b) forming a framed bundle by placing the foil bundle with an inner frame, (c) filling an outer box by inserting the framed bundle through an open end of the outer box, and (d) closing end flaps of the outer box.

In accordance with another embodiment, a cigarette package comprises an outer box, an inner frame and a foil bundle, the inner frame includes a front panel, a rear panel, a side panel and a bottom panel.

In accordance with a further embodiment, a cigarette package comprises an outer box, an inner frame and a foil bundle, the inner frame includes a first side panel, a second side panel, a rear panel
extending between the first and second side panels, and a top panel
and a bottom panel extending from the rear panel.

In accordance with another embodiment, a cigarette packing
apparatus includes a foil bundle feed line feeding foil bundles, an
inner frame feed line feeding inner frames, an outer box feed line
feeding outer boxes, a first device which sequentially forms framed
bundles by placing one of the foil bundles with one of the inner
frames, and a second device which forms cigarette packages by
inserting one of the framed bundles in an open end of one of the
outer boxes.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

FIG. 1A shows an exploded perspective view of a cigarette
package comprising an outer box and a framed bundle formed of a foil
bundle and an inner frame.

FIG. 1B shows an exploded perspective view of an alternative
embodiment of the cigarette package of FIG. 1A.

FIG. 2 shows a flow diagram of a method of packing cigarettes.

FIG. 3 shows a flow diagram of the method of packing cigarettes
according to a further embodiment incorporating a shoe.

FIG. 4 shows a blank of the inner frame according to FIG. 1A in
a spread out state.

FIG. 5 shows a blank of the outer box according to FIG. 1A in a
spread out state.

FIGS. 6A - 6C show a flow diagram of a method of assembly of a
collapsed outer box.

FIG. 7 shows a plan view of a cigarette packing apparatus.

FIG. 8 shows an exploded perspective view of a cigarette package
comprising an outer box and a framed bundle formed of a foil bundle
and an inner frame in accordance with a further embodiment.

FIG. 9 shows a perspective view of the cigarette package of FIG.
8.

FIG. 10 shows a blank of the inner frame according to FIGS. 8
and 9 in a spread out state.

FIG. 11 shows a blank of the outer box according to FIGS. 8 and
9 in a spread out state.
FIG. 12 shows an exploded perspective view of a cigarette package comprising an outer box and a framed bundle formed of a foil bundle and an inner frame in accordance with another embodiment.

FIG. 13 shows a blank of the inner frame according to FIG. 12 in a spread out state.

FIG. 14 shows a blank of the outer box according to FIG. 12 in a spread out state.

FIG. 15 shows an exploded perspective view of a cigarette package comprising an outer box and a framed bundle formed of a foil bundle and an inner frame in accordance with a further embodiment.

FIG. 16 shows a blank of one embodiment of an inner frame according to FIG. 15 in a spread out state.

FIG. 17 shows a blank of another embodiment of the inner frame according to FIG. 15 in a spread out state.

FIG. 18 shows a blank of the outer box according to FIG. 15 in a spread out state.

FIG. 19 shows an exploded perspective view of a cigarette package comprising an outer box and a framed bundle formed of a foil bundle and an inner frame in accordance with another embodiment.

FIG. 20 shows a blank of the inner frame according to FIG. 19 in a spread out state.

FIG. 21 shows a blank of the outer box according to FIG. 19 in a spread out state.

FIG. 22 shows an exploded perspective view of a cigarette package comprising an outer box and a framed bundle formed of a foil bundle and an inner frame in accordance with a further embodiment.

FIG. 23 shows a blank of the inner frame according to FIG. 22 in a spread out state.

FIG. 24 shows a blank of the outer box according to FIG. 22 in a spread out state.

DETAILED DESCRIPTION

FIG. 1A shows an exploded perspective view of a cigarette package 100. The cigarette package 100 is similar to the so-called hinge-lid box cigarette package and comprises an outer box 160 and a framed bundle 140 inserted within the outer box 160. The outer box 160 includes a left panel 172, a front panel 176, a right panel 180,
a back panel 184, a top panel 198, and a bottom panel 200. The left panel 172, the front panel 176 and the right panel 180 include a separation line 170 forming a hinged top 171. It can be appreciated that the hinged top 171 can open from the front with a hinged back panel 184 or from the side with a hinged left panel 172 or right panel 180.

The framed bundle 140 comprises an inner frame 150 and a foil bundle 110 (not shown). The foil bundle 110 includes a group of cigarettes in a foil wrapper. The inner frame 150 includes a front panel 152, a rear panel 154, a side panel 156 extending between the front and rear panels 152, 154, and a bottom panel 158 extending from the front panel 152. The front and side panels 152, 154 include a top edge 153, which is higher on one side thereof.

FIG. 1B shows an exploded perspective view of an alternative embodiment of the cigarette package 100 of FIG. 1a. As shown in FIG. 1B, the cigarette package 100 comprises an outer box 160 comprising a left panel 172, a front panel 176, a right panel 180, a back panel 184, a top panel 198, and a bottom panel 200. The left panel 172, the front panel 176 and the right panel 180 include a separation line 170 forming a hinged top 171.

The framed bundle 140 comprises an inner frame 150 and a foil bundle 110. The foil bundle 110 includes a group of cigarettes in a foil wrapper 120. The inner frame 150 includes a first side panel 252, a front panel 254, and a second side panel 256. Alternatively, the inner frame 150 can also include a rear panel 258. A bottom panel 260 extends from the front panel 254 and is preferably smaller than an end of the foil bundle 110.

FIG. 2 shows a flow diagram of a method of packing a cigarette package 100 as shown in FIGS. 1A and 1B. FIG. 2 illustrates two parallel feed paths, a first feed path 300 for forming the framed bundle 140 and a second feed path 310 for forming the outer box 160. The advancing framed bundle 140 as shown in FIG. 2 has been previously formed. The first feed path 300 and the second feed path 310 converge for assembly of the cigarette package 100.

The framed bundle 140 is formed in the first feed path 300 by placing a group of cigarettes 120 in a foil wrapper 130 forming a
foil bundle 110. At the station 440, the foiled bundle 110 is then placed with the inner frame 150 forming the framed bundle 140.

As shown in FIG. 2, the outer box 160 begins as a collapsed outer box 160 as it moves along the second feed path 310. As the collapsed outer box 160 is fed to through the packing apparatus 400 (FIG. 7), the opposed side edges comprising the left panel 172 and right panel 180 of the collapsed box 160 move toward each other to open the outer box 160. Simultaneously, each of the end flaps 164 comprising bottom flaps 196, 200, 204, 208 (FIG. 5), at one end of the box 160 move outwardly to form an open end 162 of the outer box 160. Inserting the framed bundle 140 through the open end 162 of the outer box 160 then fills the outer box 160. The end flaps 164 comprising the top flaps 194, 198, 202, 206 (FIG. 5) and the bottom flaps 196, 200, 204, 208 of the outer box 160 are then closed to form a completed cigarette package 100.

As shown in FIG. 2, the framed bundle 140 is moved along the first feed path 300 and the outer box 160 is fed along the second feed path 310 parallel to the first feed path 300. The framed bundle 140 can be inserted into the outer box 160 by a plunger 320 or other suitable device adapted to insert the framed bundle 140 into the outer box 160.

The plunger 320 preferably moves in a direction perpendicular 322 to the first and second feed paths 300, 310. However, it can be appreciated that the plunger 320 can also move at an angle to the first and second feed paths 300, 310, if the plunger 320 is modified to accommodate the angle.

As shown in FIG. 7, a plurality of framed bundles 140 can move along the first feed path 300, while a plurality of outer boxes 160 are fed along the second feed path 310 parallel 324 to the first feed path 300. The framed bundles 140 are inserted into a respective one of the outer boxes 160 by a plunger 320.

As shown in FIG. 3, in an alternative embodiment, the framed bundle 140 can be fed through a tapered shoe 330 having an opening 332 into the open end 162 of the outer box 160. The tapered shoe 330 aligns the framed bundle 140 with the open end 162 of the outer box 160 as the plunger 320 pushes the framed bundle 140 into the outer box 160.
Once the framed bundle 140 is inserted into the open end 162 of the outer box, the end flaps 164 are closed at the open end 162 of the outer box 160 prior to closing the end flaps 164 at the opposite end of the outer box 160. Alternatively, the end flaps at the opposite end of the outer box 160 can be closed prior to the end flaps 164 at the open end 162 of the outer box or the end flaps 164 can be closed simultaneously.

As shown in FIGS. 1A and 1B, the outer box 160 is preferably a hinged-lid box having a hinged top 171. However, it can be appreciated that the cigarette package 100 and method of packing cigarettes can be applied to a non-hinged top box.

As shown in FIG. 2, the foil bundle 110 is placed with the inner frame 150 by wrapping the inner frame 150 around the foil bundle 110. The framed bundle 140 includes a bottom panel 158, which the plunger 320 contacts during insertion of the framed bundle 140 into the open end 162 of the outer box 160. The inner frame 150 includes a front panel 152, a rear panel 154, a side panel 156 and a bottom panel 158. The bottom panel 158 avoids damage to the foil bundle 110 due to impact of the plunger 320 during high speed packaging operations and promotes a more precise placement of the framed bundle 140 into the outer box 160.

FIG. 4 shows a blank of one embodiment of the inner frame 150 prior to assembly. As shown, the inner frame 150 includes a front panel 152, a rear panel 154, a side panel 156 extending between the front and rears panels 152, 154, and a bottom panel 158 extending from the front panel 152. The front and rear panels 152, 154 include a top edge 153, which is higher on one side thereof. The top edge 153 follows the contour of the opened cigarette package 100.

FIG. 5 shows a blank of the outer box 160 prior to assembly. As shown, the outer box 160 includes a left panel 172 having a free edge 174, a front panel 176 attached to the left panel 172 at a fold line 178, a right panel 180 attached to the front panel 176 at a fold line 182, a back panel 184 attached to the right panel 180 at a fold line 186, and a glue panel 188 extending from the back panel 184 at a fold line 190, the glue panel 188 being glued to the underside 192 of the left panel 172.
The outer box 160 further includes top and bottom left flaps 194, 196 extending from the left panel 172, top and bottom front flaps 198, 200 extending from the front panel 176, top and bottom right flaps 202, 204 extending from the right panel 180, top and bottom back flaps 206, 208 extending from the back panel 184, the left, right and back flaps 194, 196, 202, 204, 206, 208, being glued to the underside of the front flaps 198, 200.

FIGS. 6A-6C show a flow diagram of the outer box 160 being assembled into a collapsed outer box 160.

As shown in FIGS. 6A and 6B, the outer box 160 is folded at fold line 186 into a bottom portion comprising the left panel 172, the front panel 176, and right panel 180 and a top portion comprising the back panel 184 and glue panel 188. The underside 192 of the left panel 172 is folded at the fold line 178 and glued to the glue panel 188. The gluing of the underside 192 of the left panel 172 forms the collapsed box 160.

FIG. 6C shows the collapsed inner box 160 after gluing, wherein the front panel 176 and right panel 180 form the top portion of the collapsed box 160. As shown in FIG. 6C, the back panel 184 and left panel 172 form the bottom portion.

FIG. 7 shows a cigarette packing apparatus 400 for a cigarette package 100 as shown in FIGS. 1-6. The apparatus 400 comprises a foil bundle feed line 410, an inner frame feed line 420, and an outer box feed line 430.

A bundler module 470 receives a plurality of cigarettes 105 and places the cigarettes in preferably groups of twenty cigarettes. The twenty cigarettes form a group of cigarettes 120, which are fed to the foil bundle feed line 410. It can be appreciated that groups of cigarettes numbering other than twenty can be fed to the foil bundle feed line 410, if desired. A plurality of vanes 414 within the bundler module 470 guide the cigarettes 105 into groups of 20, which are then fed to the foil bundle feed line 410.

The bundler module 470 wraps the group of cigarettes 120 in a foil wrapper 130 forming a foil bundle 110. A foil turret 412 wraps the group of cigarettes 120 with a foil wrapper 130 as the cigarettes are fed on the foil bundle feed line 410. The group of cigarettes 120 in the foil wrapper 130 forms the foil bundle 110.
An inner frame 150 blank as shown in FIG. 4 is fed into an inner box device, which forms the inner frame 150. The foil bundles 110 are then fed to the inner frame feed line 420 to a first device 440. The first device 440 sequentially forms framed bundles 140 by placing one of the foil bundles 110 with one of the inner frames 150.

The framed bundles are then fed to the outer box feed line 430. The outer box feed line 430 includes a second device 450, which forms the cigarette packages 100. The second device 450 forms the cigarette package 100 by inserting one of the framed bundles 140 in an open end 162 of one of the outer boxes 160. The second device 450 preferably includes a plunger 320 or other suitable device, which contacts the bottom panel 158, 260 of the framed bundle 140 and pushes the framed bundle 140 at least partially (but preferably, fully) into the outer box 160.

In an alternative embodiment, a third device 460 receives the collapsed outer box 160 as shown in FIG. 6C and manipulates the collapsed outer box 160 such that front and back panels 176, 180 thereof are moved apart to form the open end 162 of the outer box 160.

After the cigarette packages 100 are assembled by the second device 450, the front panel 176 of the cigarette package 100 is facing upward. A pack twist module 500 rotates the cigarette packages 100, so the back panel 184 of the cigarette package 100 is facing upward as the cigarette packages 100 enter an (optional) onserter module 510. The onserter module 510 applies packaging information, including the date and/or tax stamp to the cigarette packages 100. The name and brand of the cigarettes 105 are typically preprinted on the outer box 160.

The cigarette packages 100 are fed to a wrapper module 480. The wrapper module 480 wraps the cigarette packages 100 with a polymer film 108.

After the cigarette packages 100 are wrapped in the polymer film 108, the cigarette packages 100 are fed to the carton module 490. The carton module inserts the cigarette packages 100 into cartons 492. Each carton 490 preferably comprises ten cigarette packages 100. The cartons 490 can be manually placed in a case 500 for
shipping. It can be appreciated that the cartons 490 can also be automatically fed into a case 500 for shipping.

It can be appreciated that the methods as described can be implemented with Bergami equipment including a Bergami AS150 Boxer, a Bergami CX5 Wrapper, and a Bergami F50 Cartoner, or similar apparatuses.

FIGS. 8 and 9 show an exploded perspective view of a cigarette package 100 in accordance with a further embodiment. As shown in FIG. 8, the cigarette package 100 comprises an outer box 160 and a framed bundle 140 with an inner frame 150. The framed bundle 140 is inserted through an open end of the outer box 160 to form the cigarette package 100. FIG. 9 shows a perspective view of the assembled cigarette package 100 of FIG. 8.

FIG. 10 shows a blank of the inner frame 150 of FIGS. 8 and 9 prior to assembly of the cigarette package 100. As shown in FIG. 10, the inner frame 150 includes a first side panel 252, a second side panel 256, a front panel 254 extending between the first and second side panels 252, 256, and a bottom panel 260 extending from the front panel 254. Opposite the bottom panel 260, the front panel 254 includes a V-cut 259 for ease of cigarette removal from the inner frame 150. It can be appreciated that the inner frame 150 can also include a back panel 258 (not shown).

FIG. 11 shows a blank of the outer box 160 of FIGS. 8 and 9 prior to assembly of the cigarette package 100. As shown in FIG. 11, the outer box 160 includes a left panel 172, a front panel 176 attached to the left panel 172 at a fold line 178, a right panel 180 attached to the front panel 176 at a fold line 182, and a back panel 184 attached to the left panel 172 at a fold line 186. As shown in FIG. 11, the back panel 184 has a free edge 174. A cover panel 198 extends from the back panel 184. The cover panel 198 includes an outside panel 220, an inside panel 222, and a top panel 224. The top panel 224 connects the outside panel 220 to the back panel 184 of the outer box 160 via a pair of fold lines. A closure panel 226 connects to the outside panel 220 via a fold line. In one embodiment, the closure panel 226 includes a cutout 228 for ease of connecting the cover panel 198 to the front panel 176 of the outer box 160. The front panel 176 also includes a second cutout 229 adapted to receive
the closure panel 226 and a V-Cut 177 for ease of cigarette removal from the outer box 160.

The outer box 160 further includes a bottom left flap 196, a bottom front flap 200 and a bottom right flap 204, extending from the left panel 172, front flap 176, and right flap 180, respectively. A glue panel 188 extends from the right panel 180 at a fold line 190. The back panel 184 further includes a bottom back flap 208, which includes a second glue panel 189. The second glue panel 189 includes a pair of flaps 201 for gluing the outer box 160 together.

FIG. 12 shows an exploded perspective view of a cigarette package 100 in accordance with another embodiment. The cigarette package 100 comprises an outer box 160 and a framed bundle 140 with an inner frame 150, which is inserted through an open end of the outer box 160. The cigarette package 100 as shown in FIG. 12 is also similar to the so-called hinge-lid box cigarette package as shown in FIGS. 1-6.

FIG. 13 shows a blank of the inner frame 150 of FIG. 12 prior to assembly. As shown in FIG. 12, the inner frame 150 includes a front panel 152, a rear panel 154, a side panel 156 extending between the front and rear panels 152, 154, and a bottom panel 158 extending from the front panel 152. The front and rear panels 152, 154 include a top edge 153, which is higher on one side thereof and forms a V-cut with the side panel 156. The top edge 153 follows the contour of the opened cigarette package 100. The side panel 156 also includes a tab 151.

FIG. 14 shows a blank of the outer box 160 of FIG. 12 prior to assembly. As shown in FIG. 14, the outer box 160 includes a left panel 172, a front panel 176 attached to the left panel 172 at a fold line 178, a right panel 180 attached to the front panel 176 at a fold line 182, and a back panel 184 attached to the left panel at a fold line 186. The right panel 180 has a free edge 174. A glue panel 188 extends from the back panel 184 at a fold line 190. The glue panel 188 glues to the underside of the right panel 180.

The outer box 160 further includes top and bottom left flaps 194, 196 extending from the left panel 172, top and bottom front flaps 198, 200 extending from the front panel 176, top and bottom right flaps 202, 204 extending from the right panel 180, top and
bottom back flaps 206, 208 extending from the back panel 184. As shown in FIG. 14 the left, right and back flaps 194, 196, 202, 204, 206, 208, are glued to the underside of the front flaps 198, 200. The back and front panels 176, 184, the top, back and front flaps 198, 206, the right panel 180, and the glue panel 188, further include a separation line 170 forming a hinged top 171.

FIG. 15 shows an exploded perspective view of another cigarette package 100 in accordance with a further embodiment. The cigarette package 100 comprises an outer box 160 and a framed bundle 140 with an inner frame 150, which is inserted through an open end of the outer box 160.

FIG. 16 shows a blank of the inner frame 150 of FIG. 15 prior to assembly. As shown, the inner frame 150 includes a first side panel 252, a second side panel 256, and a rear panel 258 extending between the first and second side panels 252, 256. A bottom panel 260 and a top panel 246 extend from the bottom and top of the rear panel 258, respectively. The bottom panel 260 comprises a first bottom panel 240 and a second bottom panel 242 with a fold line 244 separating the first bottom panel 240 from the second bottom panel 242. The top panel 246 extends from the rear panel 258 and includes a pair of fold lines 248 separating the top panel 246 into a first top panel 241, a second top panel 243 and a third top panel 245.

FIG. 17 shows a blank of the inner frame 150 in accordance with another embodiment prior to assembly, which can be used with the outer box 160 as shown in FIG. 15. As shown, the inner frame 150 includes a first side panel 252, a second side panel 256, and a rear panel 258 extending between the first and second side panels 252, 256. The inner frame 150 also includes a bottom panel 260 extending from the rear panel 258. The bottom panel 260 comprises a first bottom panel 240 and a second bottom panel 242 with a fold line 244 separating the first bottom panel 240 from the second bottom panel 242. A top panel 246 extends from the rear panel 258 and includes a single fold line 249 separating the top panel 246 into a first top panel 241 and a second top panel 243.

FIG. 18 shows a blank of the outer box 160 prior to assembly, which is adapted to receive the inner frame 150 as shown in FIGS. 16 and 17. As shown in FIG. 18, the outer box 160 includes a left panel
172, a front panel 176 attached to the left panel 172 at a fold line 178, a right panel 180 attached to the front panel 176 at a fold line 182, a back panel 184 attached to the left panel at the fold line 190. An upper front flap 216 extends from the front panel 176.

In addition, as shown in FIG. 18, the outer box 160 also includes a glue panel 188, which extends from the right panel 180 at a fold line 291 and includes two glue flaps 295 and a center flap 294 to assist with the assembly of the outer box 160. A second glue panel 288 extends from the back panel 184 at a fold line 289 and includes a pair of glue flaps 297.

The outer box 160 further includes top and bottom left flaps 194, 196 extending from the left panel 172, and top and bottom back flaps 206, 208 extending from the back panel 184. When assembled, the top and bottom left flaps 194, 196 and the pair of glue flaps 290 are glued to the underside of the top and bottom back flaps 206, 208.

In addition, as shown in FIG. 18, the two glue flaps 292 are glued to the underside of the second glue panel 288. The back panel 184 also includes a pair of receiving glue panels 293 adapted to receive the two glue flaps 292 from the glue panel 188.

FIG. 19 shows an exploded perspective view of a further cigarette package 100 in accordance with another embodiment. The cigarette package 100 comprises an outer box 160 and a framed bundle 140 with an inner frame 150, which is inserted through an open end of the outer box 160.

FIG. 20 shows a blank of the inner frame 150 of FIG. 19 prior to assembly. As shown, the inner frame 150 includes a first side panel 252, a second side panel 256, a rear panel 258 extending between the first and second side panels 252, 256. The inner frame 150 also includes a top panel 246 and a bottom panel 260 extending from the rear panel 258. The bottom panel 260 comprises a first bottom panel 240 and a second bottom panel 242 with a fold line 244 separating the first bottom panel 240 from the second bottom panel 242. The top panel 246 extends from the rear panel 258 and includes a fold line 249 forming a first top panel 241 and a second top panel 243.

FIG. 21 shows a blank of the outer box 160 prior to assembly, which is adapted to receive the inner frame 150 as shown in FIG. 20. As shown in FIG. 21, the outer box 160 includes a left panel 172, a
front panel 176, a right panel 180, a back panel 184, an inside front panel 177 having a free edge 174, and a glue panel 288. The glue panel 288 extends from the back panel 184 and attaches to an underside of the right panel 180.

FIG. 22 shows an exploded perspective view of a cigarette package 100 in accordance with a further embodiment. The cigarette package 100 comprises an outer box 160 and a framed bundle 140 with an inner frame 150, which is inserted through an open end of the outer box 160.

FIG. 23 shows a blank of the inner frame 150 of FIG. 22 prior to assembly. As shown, the inner frame 150 includes a first side panel 252, a second side panel 256, and a rear panel 258 extending between the first and second side panels 252, 256. The inner frame 150 also includes a bottom panel 260 extending from the rear panel 258. The first and second side panels 252, 256 each have an upper flap 290 and a lower flap 292. The upper and lower flaps 290, 292 form the sides of the inner frame 150 when assembled. The bottom panel 260 comprises a first bottom panel 240 and a second bottom panel 242 with a fold line 244 separating the first bottom panel 240 from the second bottom panel 242. A top panel 246 extends from the rear panel 258 and includes a fold line 249 forming a first top panel 241 and a second top panel 243.

FIG. 24 shows a blank of the outer box 160 prior to assembly, which is adapted to receive the inner frame 150 as shown in FIG. 23. As shown in FIG. 24, the outer box 160 includes a left panel 172, a front panel 176 attached to the left panel 172 at a fold line 178, a right panel 180 attached to the front panel 176 at a fold line 182, and a back panel 184 attached to the left panel 172 at a fold line 190. The right panel 180 has a free edge 174. A glue panel 188 extends from the back panel 184 at a fold line 189. The glue panel 188 has an outer glue panel 195 and an inner glue panel 197 having a fold line 199 separating the outer glue panel 195 from the inner glue panel 197.

The outer box 160 further includes a bottom left flap 196 extending from the left panel 172, a bottom front flap 200 extending from the front panel 176, a bottom right flap 204 extending from the right panel 180, and a bottom back flap 208 extending from the back
panel 184. The bottom back flap 208 consists of a pair of glue flaps 237, 239. The bottom front flap 200 is comprised of a pair of front flaps 233, 235, which are adapted to receive the pair of glue flaps 237, 239 when assembled. The bottom left flap 196 and bottom right flap 204 are glued to one another when FIG. 24 is assembled.

As shown in FIG. 2, each of the outer box 160 designs as described herein begin as a collapsed outer box 160 as the outer box moves along the second feed path. As the collapsed outer box 160 is fed through the packing apparatus 400 (FIG. 7), the opposed side edges 166 comprising the left panel 172 and the right panel 180 of the collapsed outer box 160 move toward each other to open the outer box 160. The bottom flaps 196, 200, 204, 208 at one end of the box 160 move outwardly to form the open end 162 of the outer box 160. The framed bundle 140 with the inner frame 150 is then inserted through the open end 162 of the outer box 160. The top flaps 194, 198, 202, 206 and the bottom flaps 196, 200, 204, 208 are closed to form a completed cigarette package 100. It can be appreciated that alternative embodiments of the outer box 160 can include additional panels and/or end flaps, which are closed to form the completed cigarette package 100.

Although the methods, apparatuses and packaging has been described in terms of the preferred embodiments thereof, it will be appreciated by those skilled in the art that additions, deletions, modifications, and substitutions not specifically described can be made without departing from the spirit and scope of the embodiments as defined in the appended claims.
CLAIMS:

1. A method of packing cigarettes, comprising (a) forming a foil bundle by placing a group of cigarettes in a foil wrapper, (b) forming a framed bundle by placing the foil bundle with an inner frame, (c) filling an outer box by inserting the framed bundle through an open end of the outer box, and (d) closing end flaps of the outer box.

2. The method of claim 1, wherein the framed bundle is moved along a first feed path and the outer box is fed along a second feed path parallel to the first feed path, the framed bundle being inserted into the outer box by a plunger which moves in a direction perpendicular to the first and second feed paths.

3. The method of claim 1, wherein a plurality of framed bundles are moved along a first feed path and a plurality of outer boxes are fed along a second feed path parallel to the first feed path, each of the framed bundles being inserted into a respective one of the outer boxes by a plunger which moves in a direction perpendicular to the first and second feed paths.

4. The method of claim 1, further comprising feeding a collapsed outer box along the second feed path, moving opposed side edges of the collapsed box towards each other to open the box, and bending flaps at one end of the box outwardly to form the open end of the outer box.

5. The method of claim 1, further comprising feeding the framed bundle through a tapered shoe opening aligned with the open end of the outer box.

6. The method of claim 1, wherein the end flaps are closed at the open end of the outer box prior to closing the end flaps at the opposite end of the outer box.
7. The method of claim 1, wherein the outer box is a hinged-lid box.

8. The method of claim 1, wherein the foil bundle is placed within the inner frame by wrapping the inner frame around the foil bundle.

9. The method of claim 1, wherein during insertion of the framed bundle into the open end of the outer box, a plunger contacts a bottom panel of the framed bundle.

10. A cigarette package comprising an outer box, an inner frame and a foil bundle, the inner frame including a front panel, an optional rear panel, at least one side panel and a bottom panel.

11. The cigarette package of claim 10, wherein the outer box includes a hinged top.

12. The cigarette package of claim 10, wherein the inner frame includes a first side panel, a second side panel, a front panel extending between the first and second side panels, and a bottom panel extending from the front panel.

13. The cigarette package of claim 10, wherein the front and rear panels include a top edge, which is higher on one side thereof.

14. The cigarette package of claim 10, wherein the outer box includes a left panel having a free edge, a front panel attached to the left panel at a fold line, a right panel attached to the front panel at a fold line, a back panel attached to the right panel at a fold line, and a glue panel extending from the back panel at a fold line, the glue panel being glued to the underside of the left panel.

15. The cigarette package of claim 14, wherein the outer box further includes top and bottom left flaps extending from the left panel, top and bottom front flaps extending from the front panel, top and bottom right flaps extending from the right panel, top and bottom back flaps
extending from the back panel, the left, right and back flaps being glued to the underside of the front flaps.

16. The cigarette package of claim 12, wherein the outer box includes a back panel having a free edge, a left panel attached to the back panel at a fold line, a front panel attached to the left panel at a fold line, a right panel attached to the front panel at a fold line, and a glue panel extending from the right panel at a fold line, the glue panel being glued to the underside of the back panel.

17. The cigarette package of claim 16, wherein the outer box further includes a bottom left flap extending from the left panel, a bottom front flap extending from the front flap, a bottom right flap extending from the right flap, a bottom back flap and a cover panel extending from the back panel, the cover panel having an outside panel, an inside panel, and a top panel, the top panel connecting the outside panel to the back panel via a pair of fold lines, the bottom back flap being glued to the underside of the bottom front flap.

18. The cigarette package of claim 10, wherein the outer box includes a right panel having a free edge, a front panel attached to the right panel at a fold line, a left panel attached to the front panel at a fold line, a back panel attached to the left panel at a fold line, and a glue panel extending from the back panel at a fold line, the glue panel being glued to the underside of the right panel.

19. The cigarette package of claim 18, wherein the outer box further includes top and bottom left flaps extending from the left panel, top and bottom front flaps extending from the front panel, top and bottom right flaps extending from the right panel, top and bottom back flaps extending from the back panel, the left, the right and back flaps being glued to the underside of the front flaps.

20. A cigarette package comprising an outer box, an inner frame and a foil bundle, the inner frame including a first side panel, a second side panel, a rear panel extending between the first and second side
panels, and a top panel and a bottom panel extending from the rear panel.

21. The cigarette package of claim 20, wherein the outer box includes a back panel, a left panel attached to the back panel at a fold line, a front panel attached to the left panel at a fold line, a right panel attached to the front panel at a fold line, a glue panel extending from the right panel at a fold line, an upper front flap extending from the front panel, and a second glue panel extending from the back panel at a fold line.

22. The cigarette package of claim 21, wherein the outer box further includes top and bottom second glue flaps extending from the second glue panel, top and bottom left flaps extending from the left panel, and top and bottom back flaps extending from the back panel, the top and bottom second glue flaps and the top and bottom left flaps being glued to the underside of the top and bottom back flaps.

23. The cigarette package of claim 20, wherein the outer box includes a left panel, a front panel, a right panel, a back panel, an inside front panel having a free edge, and a glue panel, the glue panel extending from the back panel and attaching to an underside of the right panel.

24. The cigarette package of claim 20, wherein the outer box includes a right panel having a free edge, a front panel attached to the right panel at a fold line, a left panel attached to the front panel at a fold line, a back panel attached to the left panel at a fold line, and a glue panel extending from the back panel at a fold line, the glue panel having an outer glue panel and an inner glue panel, and a fold line separating the outer glue panel from the inner glue panel.

25. The cigarette package of claim 24, wherein the outer box further includes a bottom left flap extending from the left panel, a bottom front flap extending from the front panel, a bottom right flap extending from the right panel, and a bottom back flap extending from
the back panel, the bottom back flap having a pair of glue flaps, the bottom front flap having a pair of front flaps, wherein the pair of front flaps receive the pair of glue flaps when assembled.

26. A cigarette packing apparatus including a foil bundle feed line feeding foil bundles, an inner frame feed line feeding inner frames, an outer box feed line feeding outer boxes, a first device which sequentially forms framed bundles by placing one of the foil bundles with one of the inner frames, and a second device which forms cigarette packages by inserting one of the framed bundles in an open end of one of the outer boxes.

27. The apparatus of claim 26, wherein the second device includes a plunger which contacts an end of the framed bundle and pushes the framed bundle at least partially into the outer box.

28. The apparatus of claim 26, wherein a collapsed outer box is fed along the outer box feed line, the apparatus including a third device which manipulates the collapsed outer box such that front and back panels thereof are moved apart to form the open end of the outer box.

29. The apparatus of claim 26, further comprising a bundler module wherein cigarettes are wrapped in a foil wrapper.

30. The apparatus of claim 26, further comprising a wrapper module wherein the cigarette packages are wrapped in a polymer film.

31. An inner frame of a cigarette package comprising a front panel, an optional rear panel, at least one side panel and a bottom panel.

32. The inner frame of claim 31 wherein bottom panel is adapted to receive a plunger during packing operations.
**INTERNATIONAL SEARCH REPORT**

**A. CLASSIFICATION OF SUBJECT MATTER**

INV. B65B19/14  B65B19/18  B65B19/20  B65D85/10

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

B65B  B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

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<td>DE 101 58 736 A1 (FOCKE &amp; CO) 12 June 2003 (2003-06-12) column 7, line 18 - column 10; figure 14</td>
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"A" document member of the same patent family

Date of the actual completion of the International search

8 June 2006

Date of mailing of the International search report

27. 06. 2006

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epc ol, Fax: (+31-70) 340-3016

Authorized officer

Grentzius, W
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**Box II** Observations where certain claims were found unsearchable (Continuation of Item 2 of First Sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. □ Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. □ Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. □ Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box III** Observations where unity of invention is lacking (Continuation of Item 3 of First Sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

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see additional sheet
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1. □ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. □ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. □ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

    1-13, 26-32

4. □ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  

**Remark on Protest**

□ The additional search fees were accompanied by the applicant's protest.

X No protest accompanied the payment of additional search fees.
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-9, 26-30
   Method and apparatus for packing cigarettes
   ---

2. claims: 10-13, 31, 32
   Cigarette packages and inner frames thereof
   ---

3. claims: 10, 14-19
   Cigarette packages of the hinged lid type and outer frames thereof
   ---

4. claims: 20-25
   Cigarette packages of the drawer and shell type and outer frames thereof
   ---
### INTERNATIONAL SEARCH REPORT

#### Information on patent family members

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