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(54) **FILMS FOR ENVELOPMENT OF PACKAGES
AND METHODS OF MAKING THEREOF**

Related U.S. Application Data

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(57) **ABSTRACT**

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Films for enveloping packages include tear-tapes that define tear-away strips of the films. The tear-tapes help to maintain the shape of the tear-away strips when removed from the films.

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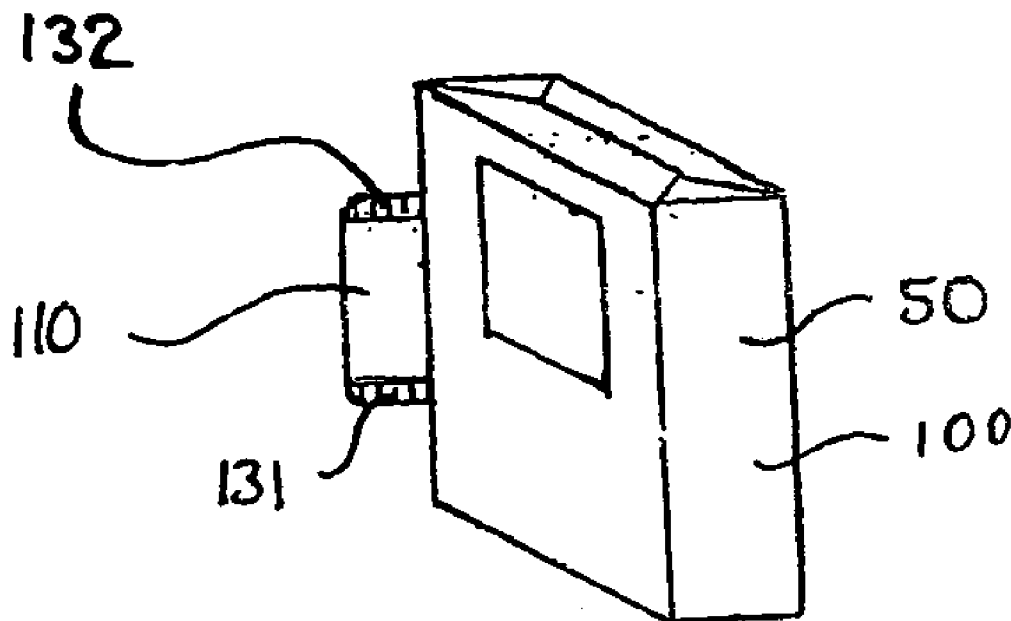


FIG. 5

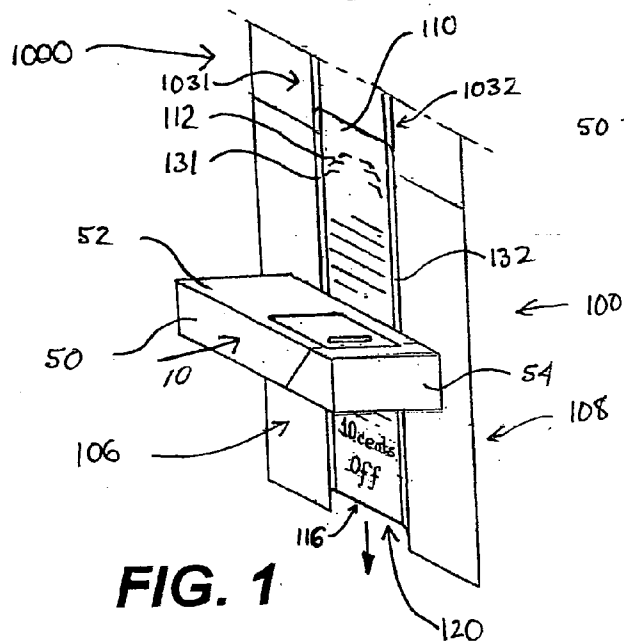


FIG. 1

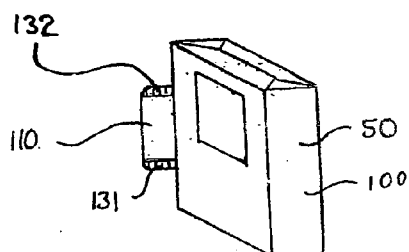
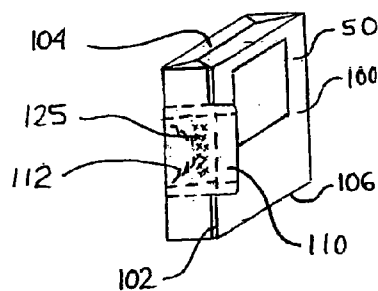
**FIG. 2**

FIG. 4

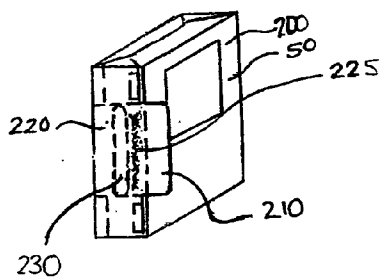


FIG. 6

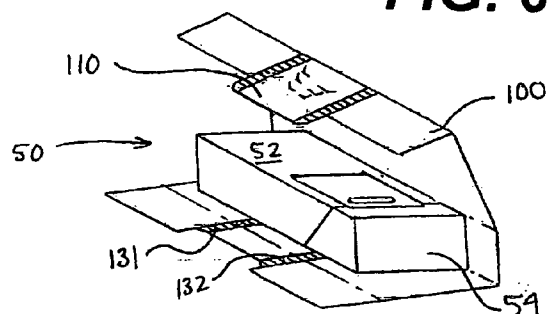


FIG. 7

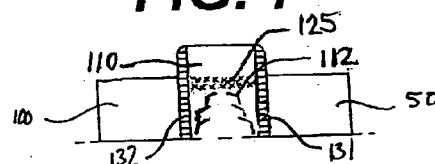
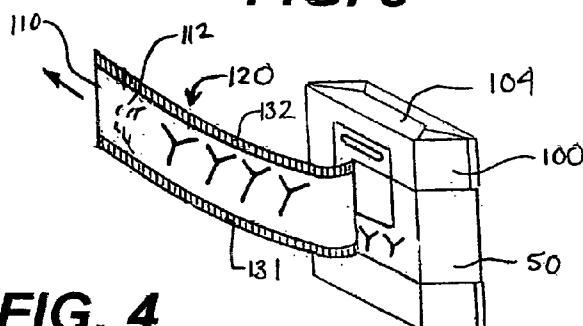


FIG. 3



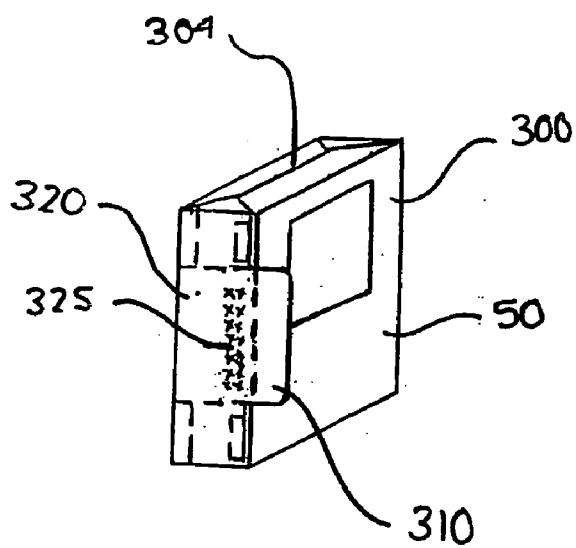


FIG. 8

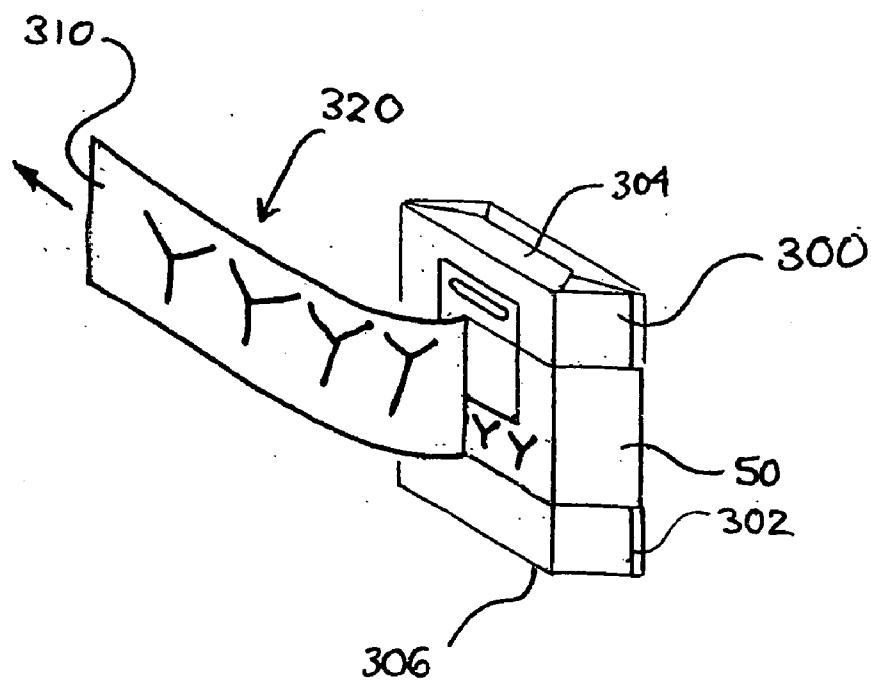


FIG. 9

FILMS FOR ENVELOPMENT OF PACKAGES AND METHODS OF MAKING THEREOF

CROSS REFERENCE TO RELATED APPLICATION

[0001] The present application claims the benefit of provisional application Ser. No. 60/533,261, filed Dec. 31, 2003, in their entirety for all useful purposes.

BACKGROUND

[0002] 1. Technical Field

[0003] The technical field is film envelopment of packages. More particularly, the technical field includes films having tear-away portions.

[0004] 2. Background Art

[0005] Film envelopment of packages, such as packages containing cigarettes, is known. Conventional films used to envelop packages, however, are easily torn. Therefore, information printed on such films may be lost when the films are removed from the packages.

[0006] There is therefore a need to provide a film for enveloping packages that allows sections of the film to be removed while maintaining an integrity or shape of the removed section.

SUMMARY

[0007] According to a first embodiment, a package is enveloped in a film. The film comprises two tear-tapes extending across the film and spaced from one another. The two tear-tapes define a tear-away strip in the film.

[0008] According to the first embodiment, the two tear-tapes allow the tear-away strip to be removed while maintaining the shape of the tear-away strip. Therefore, information may be printed on the tear-away strip and the information will not be damaged or truncated when the tear-away strip is removed from the film. According to one aspect of the first embodiment, the tear-away strip may have information printed on an interior surface of the tear-away strip. Information printed on the interior surface is therefore available only after purchase of a product enveloped in the film.

[0009] According to a second embodiment, a film comprises a tear-tape arranged on a film such that when the film is wrapped around the package, the tear-tape extends along a vertical extent of the package.

[0010] According to the second embodiment, the tear-tape allows a tear-away strip to be removed from the film. Therefore, information may be printed on the tear-away strip and the information will not be damaged or truncated when the strip is removed from the film. According to one aspect of the second embodiment, the tear-away strip may have information printed on an interior surface of the tear-away strip, allowing access to the information after the tear-away strip is removed.

[0011] According to a third embodiment, a film comprises a tear-tape arranged on a film such that when the film is wrapped around the package, a width of the tear-tape extends along a vertical extent of the package. The tear-tape is at least $\frac{1}{2}$ inch wide.

[0012] According to the third embodiment, the tear-tape defines a tear-away strip that may be removed from the film. Therefore, information may be printed on the tear-away strip and the information will not be damaged or truncated when the strip is removed from the film. According to one aspect of the third embodiment, the tear-away strip may have information printed on an interior surface of the tear-away strip, allowing access to the information after the tear-away strip is removed.

[0013] Those skilled in the art will appreciate the above stated advantages and other advantages and benefits of various embodiments of the invention upon reading the following detailed description of the embodiments with reference to the below-listed drawings.

[0014] According to common practice, the various features of the drawings are not necessarily drawn to scale. Dimensions of various features may be expanded or reduced to more clearly illustrate the embodiments of the invention.

DESCRIPTION OF THE DRAWINGS

[0015] The detailed description will refer to the following drawings, wherein like numerals refer to like elements, and wherein:

[0016] **FIG. 1** is a rear perspective view of a package enclosed in a first embodiment of a film;

[0017] **FIG. 2** is a front perspective view of the package illustrated in **FIG. 1** enclosed in the first film embodiment;

[0018] **FIG. 3** is a perspective view of the film and package illustrated in **FIGS. 1 and 2** in which a tear-away strip is being removed;

[0019] **FIG. 4** illustrates an alternative embodiment to the film illustrated in **FIGS. 1-3**;

[0020] **FIGS. 5-6** illustrate a method of manufacturing a film and packaging a package in a film;

[0021] **FIG. 7** is an isolated view of a tear-tab according to an embodiment of the invention;

[0022] **FIG. 8** is a front perspective view of yet another alternative embodiment; and

[0023] **FIG. 9** is a perspective view of the film and package illustrated in **FIG. 8** in which a tear-away strip is being removed.

DETAILED DESCRIPTION

[0024] **FIGS. 1-4** illustrate a package **50** enclosed in a film **100**. According to one aspect of the invention, the film **100** includes a tear-tab **110** that allows a person to tear away a strip **120** (illustrated in **FIG. 3**), which may be referred to as the "tear-away strip" **120**, of the film **100**. The tear-away strip **120** can be pulled away by the tear-tab **110**. Information may be printed, for example, on the interior and on the exterior of the tear-away strip **120**. For example, the interior of the tear-away strip **120** can include information such as coupon, contest, product information, or other information. **FIGS. 5-7** illustrate a method of making the film **100** and enveloping the film **100** about the package **50**.

[0025] **FIG. 1** is a rear perspective view of a package **50** enclosed in the film **100**. The package **50** may be, for example, packaging for cigarettes or other tobacco products.

FIG. 2 is a front perspective view of the package **50** enclosed in the film **100**. **FIG. 3** illustrates removal of the tear-away strip **120**. As shown in **FIG. 3**, the interior of the tear-away strip **120** can be printed with product information.

[0026] Referring to **FIG. 2**, an edge of the film **100** is sealed at a side seal **102**. The side seal **102** can be, for example, a heat seal. End folds of the film **100** are sealed at a top seal **104** and at a bottom seal **106** (the bottom seal **106** is not visible in **FIG. 2**). The tear-away strip **120** may include, for example, a perforation **112** to aid in removal of the tear-away strip **120**. Referring to **FIG. 3**, the perforation **112** causes tears in the tear-away strip **120** to propagate away from the center of the tear-away strip **120**, thereby preserving the shape of the tear-away strip **120**. The perforation **112** is illustrated as a “zipper type” perforation. Other types of perforations, however, may be used. The tear-away strip **120** can be sealed to the rest of the film **100** at a seal **125**. The seal **125** can be, for example, a heat seal.

[0027] According to an aspect of the invention. The shape of the tear-away strip **120** may be maintained during removal by the inclusion of first and second tear-tapes **131**, **132**. The first tear-tape **131** is spaced from the second tear-tape **132**, and the tear-away strip **120** is bounded by the tear-tapes **131**, **132**. The tear-tapes **131**, **132** may be applied, for example, on an interior surface of the film **100**. Therefore, the exterior surface of the film **100** may be printed upon without the tear-tapes **131**, **132** interfering with the pattern and/or text printed on the exterior of the film **100**.

[0028] According to the above embodiments, the tear-away strip **120** may provide additional information to the person opening the film **100** to gain access to the package **50**. The interior surface of the strip **120** can include information such as, for example, coupon, contest, or other product information. The use of first and second tear-tapes **131**, **132** on either side of the tear-away strip **120** serves to maintain the shape of the strip **120**, so that the information printed on the interior of the tear-away strip **120** is not damaged during removal of the strip **120**. In addition, the exterior surface of the film **100** can be printed with product information that mimics or supplements product information contained on the package **50**.

[0029] The tear-away strip **120** may have width, as defined by the spacing between the tear-tapes **131**, **132**, of at least about, for example, $\frac{1}{2}$ inch. The tear-away strip **120** may have a larger width dimension, such as at least, for example, $\frac{3}{4}$ inch, 1 inch, 2 inches, or wider.

[0030] **FIGS. 5-7** illustrate a method of manufacturing the film **100** and enveloping the package **50** in the film **100**. The package **50** includes a base portion **52**, and a lid **54** pivotably connected to the base portion **52**. The package **50** may be of generally parallelepipedal shape and may be made from, for example, paper or cardboard.

[0031] Referring to **FIG. 5**, a roll or “bobbin” of stock film material **1000** is fed into an over-wrapping machine. The stock film material **1000** is separated into individual films **100** formed from the material **1000**. The stock film material **1000** may be cut by, for example, a cutting roller. A large number of packages **50** can be enveloped in individual films **100** formed from the material **1000**. The over-wrapping machine may be of a type known in the industry. For example, an over-wrapping machine manufactured by G.D.

Package Machinery, Inc., or Focke and Co. can be used to practice the overwrapping methods described in this specification. The stock film material **1000** may be made from materials such as polypropylene, metalized polypropylene, and laminated polypropylene, as are known in the packaging art.

[0032] The stock film material **1000** includes first and second strips of tear-tape **1031**, **1032** extending along the length of the stock film material **1000**. The first and second tear-tape strips **1031**, **1032** are used to form the individual first and second tear-tapes **131**, **132** in the individual films **100**. The first and second strips of tear-tape **1031**, **1032** can be applied to the stock film material **1000** by, for example, applying pressure to contact strips of tear-tape material with the stock film material **1000**. The first and second strips of tear-tape **1031**, **1032** can be applied to the stock film material **1000**, for example, prior to the stock film material **1000** being fed into the overwrapping machine. Alternatively, the overwrapping machine can include a mechanism for applying the strips **1031**, **1032** to the stock film material **1000**.

[0033] In one embodiment, the tear-tape strips **1031**, **1032** are fed from a roll or bobbin that is mounted near the bobbin of stock film material **1000**. The tear-tape strips **1031**, **1032** are unrolled at the same speed as the stock film material **1000**. The tear-tape strips **1031**, **1032** and the stock film material **1000** are downstream fed through a pair of rollers that press the stock film material **1000** together with the tear-tape strips **1031**, **1032**. The stock film material **1000** and the tear-tape strips **1031**, **1032** may be cut by, for example, a cutting roller.

[0034] The tear-tape strips **1031**, **1032** are spaced apart a distance equal to a desired width of the tear-away strip **120** (**FIG. 3**). Exemplary spacings for the tear-tape strips **1031**, **1032** are at least $\frac{1}{2}$ inch, or larger width dimensions, such as at least, for example, $\frac{3}{4}$ inch, 1 inch, 2 inches, or wider. The spacing can vary according to, for example, the amount and/or type of information that is to be printed on the tear-away strip **120**.

[0035] As shown in **FIG. 5**, the shape of the tear-tabs **110** at one end of the films **100** correspond in shape to recesses **116** at the opposite end of the films **100**. The stock film material **1000** may therefore be a continuous sheet.

[0036] The bobbin of stock film material **1000** may include any number of sections of the individual films **100**. The individual films **100** may be printed on both an interior surface **106** and an exterior surface **108** of the film material **1000**. The films **100** may be printed with information such as, for example, product names, product graphics, and other characters or graphics. In one embodiment, coupon information is printed on the interior surface of the films **100** at a location corresponding to the tear-away strip **120**. The tear-tapes **131**, **132** preserve the coupon information during removal of the tear-away strip **120**.

[0037] Perforations **112** may be cut into the films **100** included in the roll of stock film material **1000** while the stock film material **1000** is being processed in the overwrapping machine. The film material **1000** may also be perforated prior to rolling the film material **1000** onto the bobbin.

[0038] The first and second tear-tape strips **1031**, **1032** may be of a type known in the packaging art. The tear-tape strips **1031**, **1032** may be applied, for example, by known

methods such as pressing the tear-tape strips against the film material used to form the films **100**. Adhesive may be used to attach the film material **1000** to the strips **1031**, **1032**.

[0039] Referring to **FIG. 6**, an individual film **100** is separated from the roll of stock film material **1000** and wrapped around a package **50**. The film **100** is sealed along the side of the package **50** at a side seam by application of heat, resulting in the side seal **102** illustrated in **FIG. 2**. Excess film material at the ends of the seal **100** is then folded and sealed by heat, forming the top seal **104** and the bottom seal **106** (**FIG. 2**).

[0040] Referring to **FIG. 7**, the tear-tab **110** extends past an edge of the enveloped package **50**. The first and second tear-tapes **131**, **132** are located at either side of the tear-away strip **120**. A heat seal **125** is formed to extend across the tear-tab **110**. The heat seal **125** prevents the tear-away strip **120** from being inadvertently removed from the film **100**.

[0041] Stock film material may also be provided in the form of individual pre-cut sheets of films **100**, rather than as a bobbin of stock material. In this method, cut sheets of films **100** are provided in a hopper and delivered to the overwrapping machine for enveloping around packages **50**. Each individual film **100** in the hopper may have tear-tapes **131**, **132** applied as shown in **FIG. 3**.

[0042] **FIG. 4** illustrates an alternative embodiment of a film **200**. In **FIG. 4**, a package **50** is enveloped in the film **200**. The film **200** includes a tear-tab **210** useful for removing a tear-away strip **220** from the film **200**. A tear-tape **230** (shown as a hidden line in **FIG. 4**) has a long dimension that extends across the width of the tear-away strip **220**, and is aligned vertically along the package **50** height. The tear-tape **230** establishes a width of the tear-away strip **220**. In **FIG. 4**, the tear-tape **230** is located on the interior of the tear-away strip **220**.

[0043] According to the alternative embodiment, when the tear-tab **210** is pulled, the shape of the tear-away strip **220** may be maintained. The tear-away strip **220** may have a substantial width, and information may be printed on the exterior and on the interior of the tear-away strip **220**. The tear-tape **230** may have a length of at least about, for example, $\frac{1}{2}$ inch. The tear-away strip **220** will have a similar width when removed from the film **200**. The tear-tape **230** may have a larger length dimension, such as at least, for example, $\frac{3}{4}$ inch, 1 inch, 2 inches, or wider. The longer tear-tape **230** provides a correspondingly wider tear-away strip **220**. The length of the tear-tape **230**, and the corresponding width of the tear-away strip **220**, may be varied according to the size of the information printed on the tear-away strip **220**.

[0044] The tear-tape **230** acts to ensure that information printed on the tear-away strip **220** is not damaged or truncated when the tear-away strip **220** is removed from the film **200**. A seal area **225** can secure the tear-away strip **220** to the film **100**. The seal area **225** can be, for example, a heat seal.

[0045] The film **200** may be manufactured in a manner similar to the film **100**. However, a strip of stock film material (not illustrated) would instead include tear-tapes **230**, arranged transversely to the length of the strip of stock material. One tear-tape **230**, for example, can be provided for each film **200** to be produced from the stock material.

[0046] Stock material used to form the film **200** can also be provided in cut sheet form and supplied from a hopper, as discussed above.

[0047] **FIG. 8** illustrates yet another embodiment of a film **300**. In **FIG. 8**, a package **50** is enveloped in the film **300**. The film **300** includes a tear-tab **310** useful for removing a tear-away strip **320** from the film **300**. The film **300** may have a top seal **304**, a bottom seal **306**, and a side seal **302**. A seal area **325** can be established to secure the tear-tab **310** to the film **300**.

[0048] In **FIG. 8**, the tear-away strip **320** corresponds to a wide tear-tape that extends at least partially around the package **50**. The tear-tape establishes a width of the tear-away strip **320**. The wide tear-tape used to form the tear-away strip can be made from, for example, materials used to form conventional, thin tear-tapes. The width of the tear-away strip **320** can be at least $\frac{1}{2}$ inch. The width of the tear-away strip **320** extends along a height dimension of the package **50**. Larger dimensions of at least $\frac{3}{4}$ inch, 1 inch, 2 inches, or wider may also be used. The width may be selected according to the information to be printed on the tear-away strip **320**.

[0049] Stock material used to form the film **300** can be supplied on a bobbin or in cut sheet form as discussed above. The stock film material can be attached to the wide tear-tape by, for example, an adhesive.

[0050] According to the above embodiments, films for packages can be used to convey printed information to consumers, or other persons. The inclusion of tear-tapes on the films allows a tear-away strip of repeatable shape to be removed from the film. Therefore, printed information on the strip will be available without being truncated or otherwise affected.

[0051] The film embodiments discussed above do not impair the normal operation of conventional vending machines in dispensing packages. Further, the film embodiments can include transparent portions to allow visual inspection of, for example, export stamps on the enveloped packages.

[0052] The foregoing description of the invention illustrates and describes the present invention. Additionally, the disclosure shows and describes only the preferred embodiments of the invention, but it is to be understood that the invention is capable of use in various other combinations, modifications, and environments and is capable of changes or modifications within the scope of the inventive concept as expressed herein, commensurate with the above teachings, and/or the skill or knowledge of the relevant art.

[0053] The embodiments described hereinabove are further intended to explain best modes known of practicing the invention and to enable others skilled in the art to utilize the invention in such, or other, embodiments and with the various modifications required by the particular applications or uses of the invention. Accordingly, the description is not intended to limit the invention to the form disclosed herein. Also, it is intended that the appended claims be construed to include alternative embodiments.

What is claimed is:

1. A method of enveloping packages in films, comprising:
 - providing packages;
 - providing a plurality of individual film sections, the film sections comprising:
 - a first tear-tape extending along a length of the film; and
 - a second tear-tape extending along a length of the film, wherein the first tear-tape is spaced from the second tear-tape; and
 - wrapping the individual film sections around the packages.
2. The method of claim 1, wherein the first and second tear-tapes are spaced at least $\frac{1}{2}$ inch apart.
3. The method of claim 1, wherein wrapping the film sections comprises:
 - forming a plurality of heat seals from the film sections.
4. The method of claim 1, wherein providing a plurality of individual film sections comprises:
 - providing a bobbin of film material; and
 - separating the film material from the bobbin into the individual sections.
5. The method of claim 1, wherein providing a plurality of individual film sections comprises:
 - providing a hopper of the individual film sections.
6. The method of claim 1, comprising:
 - forming perforations in the individual film sections at a location between the tear-tapes.
7. A roll of stock material for forming films for enveloping packages, the roll of stock material comprising:
 - a continuous strip of film material;
 - a first tear-tape strip extending along a length of the film material; and
 - a second tear-tape strip extending along a length of the film material, wherein the first tear-tape strip is spaced from the second tear-tape strip.
8. The roll of stock material of claim 7, wherein the first and second tear-tapes are spaced at least $\frac{1}{2}$ inch apart.
9. In combination, a package enveloped within a film, the film comprising:
 - a first tear-tape extending along a length of the film and at least partially around the package; and
 - a second tear-tape extending along a length of the film and at least partially around the package, wherein the first tear-tape is spaced from the second tear-tape.
10. The combination of claim 9, wherein:
 - the package has a base portion and a lid; and
 - the first and second tear-tapes extend around the base portion along a width of the package.
11. The combination of claim 9, wherein the first and second tear-tapes are spaced at least $\frac{1}{2}$ inch apart.
12. The combination of claim 9, wherein a tear-tab extends from the film at an edge of the package.
13. A method of enveloping packages in films, comprising:

- providing packages, wherein the packages are substantially parallelepipedal and have a base and a lid;
 - providing a plurality of individual film sections, the film sections each comprising a tear tape extending along a portion of the film;
 - wrapping the film sections around the packages, wherein when a film is wrapped around a package, a long dimension of the tear-tape extends along a height of the package.
14. The method of claim 13, wherein the long dimension of the tear-tapes is at least $\frac{1}{2}$ inch long.
 15. The method of claim 13, wherein wrapping the film sections comprises:
 - forming a plurality of heat seals from the film sections.
 16. The method of claim 13, wherein providing a plurality of individual film sections comprises:
 - providing a bobbin of film material; and
 - separating the film material from the bobbin into the individual film sections.
 17. The method of claim 13, wherein providing a plurality of individual film sections comprises:
 - providing a hopper of the individual film sections.
 18. The method of claim 13, comprising:
 - forming perforations in the individual film sections.
 19. A roll of stock material for forming films for enveloping packages, the roll of stock material comprising:
 - a continuous strip of film material;
 - a plurality of tear-tapes spaced at a predetermined spacing along the length of the film, a long dimension of the tear-tapes being aligned substantially transversely to a length dimension of the continuous strip of film material.
 20. The roll of stock material of claim 19, wherein the long dimension of the tear-tapes is at least $\frac{1}{2}$ inch long.
 21. In combination, a package having a base and a lid enveloped within a film, the film comprising:
 - a tear-tape having a long dimension extending along the film material and along a vertical extent of the package.
 22. The combination of claim 21, wherein:
 - the tear-tape is at least $\frac{1}{2}$ inch long; and
 - the tear-tape extends along the base portion.
 23. The combination of claim 21, wherein the film comprises:
 - a tear-tab extending from the film at an edge of the package.
 24. A method of enveloping packages in films, comprising:
 - providing packages;
 - providing a plurality of individual film sections, the film sections comprising:
 - a tear-tape extending along the film, the tear-tape being at least $\frac{1}{2}$ inch wide; and
 - wrapping the individual film sections around the packages.

25. The method of claim 24, wherein wrapping the film sections comprises:

forming a plurality of heat seals from the film sections.

26. The method of claim 24, wherein providing a plurality of individual film sections comprises:

providing a bobbin of film material; and

separating the film material from the bobbin into the individual film sections.

27. The method of claim 24, wherein providing a plurality of individual film sections comprises:

providing a hopper of the individual film sections.

28. The method of claim 24, wherein each tear-tape extends at least partially around a corresponding package when wrapped around the package, and wherein a width dimension of each tear-tape extends along a height of the corresponding package.

29. The method of claim 24, comprising:

forming perforations in the individual film sections.

30. A roll of stock material for forming films for enveloping packages, the roll of stock material comprising:

a continuous strip of film material;

a strip of tear-tape material extending along a long dimension of the strip of film material, the strip of tear-tape material being at least $\frac{1}{2}$ inch wide.

31. The roll of stock material of claim 30, wherein the strip of tear-tape material is at least $\frac{3}{4}$ inch wide.

32. In combination, a package having a base and a lid enveloped within a film, the film comprising:

a tear-tape, the tear-tape being at least $\frac{1}{2}$ inch wide and extending at least partially around the package.

33. The combination of claim 30, wherein:

a width dimension of the tear-tape extends along a height of the package.

34. The combination of claim 30, wherein the tear-tape is at least $\frac{3}{4}$ inch wide.

* * * * *