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(54) **TAMPER-RESISTANT ENVELOPE**

SICHERHEITS-VERSANDTASCHE

ENVELOPPE INVOLABLE

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Description

FIELD AND BACKGROUND OF THE INVENTION

[0001] The present invention, in some embodiments thereof, relates to envelopes and, more particularly, but not exclusively, to tamper-resistant and tamper-evident envelopes.

[0002] Envelopes are commonly used for packaging written/printed material and relatively small items which are to be sent by a sender in a first location to a receiver in a second location. These may include money, notes, classified documents, valuables, among others. Usually, the envelope is entrusted to a third party, which may be a complete stranger, who assumes responsibility for transporting the envelope from the sender to the receiver. In some instances, transport of the envelope may be done by a postal service. In other instances, a private delivery service such as a courier may be used. Regardless of who transports the envelope, a main concern of the sender, and frequently also the receiver, is that the envelope be received at the second location without having been tampered with. If tampered with, this may be an indication that the contents inside the envelope has been meddled with, and its confidentiality violated.

[0003] Tamper-resistant and tamper-evident envelopes are known in the art, generally designed so as to allow the third party transporting the envelope (hereinafter may be referred to as "courier" or "deliverer" and/or the receiver to visibly corroborate tampering with the envelope.

[0004] US Patent No. 5,727,686 "TAMPER-EVIDENT SECURITY ENVELOPE", relates to "A tamper-evident envelope has a first layer of paper-containing material and a second layer of paper-containing material attached to each other along a number of seams. Each seam includes a pattern embossed and/or perforated through both layers along a major part of the seam. If the envelope is opened and resealed along one of these seams, the embossed or perforated pattern is corrupted, thereby making the unauthorized opening of the envelope readily apparent to an intended recipient."

[0005] US Patent No. 5,918,983 "SECURITY ENVELOPE", relates to "A security envelope for transporting valuable documents and articles includes a thin header formed of thin frangible material secured to the back panel having an adhesive layer that seals the header to the front panel upon folding and pressing closed. An inner layer of adhesive on the inner surface of the back panel seals the inner front and back panel surfaces to close the envelope chamber and extends further toward the envelope bottom than the header adhesive layer when sealed to prevent tampering tool access to the envelope chamber. Application of tampering heat will shrivel the header and cold sufficient to release the inner adhesive layer will cause pieces of the outer adhesive layer to break off and fall away. Printed indicia on the header inner surface and a transparent flood coat on the inner

header surface will adhere to the header adhesive layer and aid in the tampering attempt indication."

[0006] US Publication No. 2008/0156855 "SECURE ENVELOPE AND METHOD FOR SECURING INFORMATION", relates to "A windowed envelope is disclosed comprising: a first panel with an interior and an exterior side; a second panel attached to the first panel to define an interior portion having opposite side edges, a closed edge portion and an opening portion opposite the closed edge portion to provide access to the interior portion of the envelope; and a flap for sealingly adhering to an exterior surface of the first panel. The flap has an interior and an exterior side and is attached to the second panel at an edge of the second panel opposite the closed edge portion. The envelope comprises thereon an adhesive layer on the interior side of the flap comprising an adhesive; wherein a non-transparent window is located on the first panel or the second panel. The window comprises a reducible dye and a microencapsulated reducing agent, which is adapted to irreversibly change to a transparent window upon heating the non-transparent window to a temperature above room temperature."

[0007] Additional background art includes US5,474,818; US4,566,627; US2,230,849; DE344106; and in particular US 2005/0116014 apart from BE384979.

SUMMARY OF THE INVENTION

[0008] There is provided in accordance with an exemplary embodiment of the present invention, a tamper-resistant envelope comprising a first and a second panel joined together along at least one tamper-evident seam to form a pocket therebetween having an opening, the tamper-evident seam having a width configured to provide at least one tamper-evident feature, the tamper-evident feature including at least one of embossing and perforations in the seam formed of both the first and second panels, wherein the tamper-evident seam is provided with at least one of the embossing and perforations formed through the first and second panels; and a flap comprising a tamper-evident adhesive, the flap distally connected to the first panel along a fold line, wherein the adhesive is disposed on a single side of the fold line, the flap adapted to adhere to at least a portion of the first panel and at least a portion of the second panel when folded along the fold line, the adhesive configured to allow the flap to substantially seal the opening, wherein the adhesive is adapted to change a color as a result of tampering with the adhesive; and wherein the first and second panels include a laminate film susceptible to a wetter, the laminate film configured to change color when exposed to the wetter; wherein the adhesive comprises an adhesive film configured to adhere to a portion of the tamper-evident feature including the at least one tamper-evident seam formed of the joined-together first and second panels; wherein the adhesive film, when adhered to a portion of

the tamper-evident feature including the at least one tamper-evident seam formed of the joined-together first and second panels, is configured to prevent access to the sealed opening from any direction using a mechanical means configured to be inserted under the flap for opening the flap.

[0009] In an exemplary embodiment of the present invention, the at least a portion of the first panel comprises an area between an opening of the pocket and a fold line along which the flap is folded.

[0010] In an exemplary embodiment of the present invention, the at least one tamper-evident seam comprises three tamper-evident seams.

[0011] In an exemplary embodiment of the present invention, the at least a portion of the second panel comprises at least a portion of an area between an opening to the pocket and a flap sealing line demarcating a positioning marker for a distal end of the flap.

[0012] In an exemplary embodiment of the present invention, the tamper-evident adhesive substantially covers an area extending from the fold line to a distal end of the flap.

[0013] In an exemplary embodiment of the present invention, the tamper-evident adhesive is adapted to change colors as a result of tampering with the adhesive.

[0014] In an exemplary embodiment of the present invention, the tamper-resistance envelope comprises a laminate film coating at least a portion of an inner face of the first panel and of an inner face of the second panel. Optionally, the at least a portion of the inner face of the first panel and of the second panel includes the pocket. Additionally or alternatively, the laminate film comprises a polymer material substantially resistant to a wetter adapted to temporarily make the first and/or the second panel optically transparent.

[0015] In an exemplary embodiment of the present invention, the at least one tamper-evident seam comprises symbols. Optionally, the at least one tamper-evident seam comprises an electric conductor for activating a warning when an open circuit is formed in the conductor.

[0016] In an exemplary embodiment of the present invention, the tamper-resistance envelope comprises a radio frequency identification tag for local reading of the envelope's identification.

[0017] In an exemplary embodiment of the present invention, the tamper-resistance envelope comprises a global positioning system device for determining a location of the envelope.

[0018] There is provided in accordance with an exemplary embodiment of the present invention, a method of using a tamper-resistant envelope, the method comprising checking an external tampering-evident feature in the envelope while transported from a sender in a first location to a receiver in a second location, and checking the external tampering-evident feature and an internal tampering-evident feature in the envelope when received at the second location by the receiver; wherein the tamper-resistant envelope comprises:

a first and a second panel joined together along at least one tamper-evident seam to form a pocket therebetween having an opening, the tamper-evident seam having a width configured to provide at least one tamper-evident feature, the tamper-evident feature including at least one of embossing and perforations in the seam formed of both the first and second panels, wherein the tamper-evident seam is provided with at least one of the embossing and perforations formed through the first and second panels; and

a flap comprising a tamper-evident adhesive, the flap distally connected to the first panel along a fold line, wherein the adhesive is disposed on a single side of the fold line, the flap adapted to adhere to at least a portion of the first panel and at least a portion of the second panel when folded along the fold line, the adhesive configured to allow the flap to substantially seal the opening, wherein the adhesive is adapted to change a color as a result of tampering with the adhesive;

wherein the first and second panels include a laminate film susceptible to a wetter, the laminate film configured to change color when exposed to the wetter;

wherein checking the external tamper-evident feature for evidence of tampering comprises:

at least one of checking a symbol on a tamper-evident seam for damage and viewing a tamper-evident adhesive through a window on the flap; and

wherein checking the internal tamper-evident feature for evidence of tampering comprises:

at least one of inspecting a tamper-evident adhesive for at least one of change of color and discoloration and

inspecting a tamper-evident adhesive for symbols unique to the adhesive;

wherein the adhesive comprises an adhesive film configured to adhere to a portion of the tamper-evident feature including the at least one tamper-evident seam formed of the joined-together first and second panels;

wherein the adhesive film, when adhered to a portion of the tamper-evident feature including the at least one tamper-evident seam formed of the joined-together first and second panels, prevents access to the sealed opening from any direction using a mechanical means inserted under the flap for opening the flap.

[0019] There is provided in accordance with an exemplary embodiment of the present invention, a method for producing a tamper-resistant envelope comprising lam-

inating a sheet for making panels with an optically opaque material, preparing a first panel and a second panel from the sheet wherein the first panel includes a flap distally connected along a fold line, joining together the first panel and the second panel along at least two tamper-evident seams to form a pocket between the panels, the pocket having an opening, the tamper-evident seams each having a width configured to provide at least one tamper-evident feature;

at least one of embossing and, perforating symbols along the at least two seams to provide the tamper-evident feature in each the seam formed of both the first and second panels, wherein each the tamper-evident seam is provided with at least one of embossing and perforations formed through the first and second panels, cutting a window in the flap, applying an adhesive to the flap on a single side of the fold line, covering the adhesive with a removable strip, marking a flap seal line on the second panel, and applying an identification and a tracking marking to the first panel and the second panels;

wherein the adhesive comprises an adhesive film configured to adhere to a portion of the tamper-evident feature including the at least one tamper-evident seam formed of the joined-together first and second panels; wherein the adhesive film, when adhered to a portion of the tamper-evident feature including the at least one tamper-evident seam formed of the joined-together first and second panels, prevents access to the sealed opening from any direction using a mechanical means inserted under the flap for opening the flap.

[0020] Unless otherwise defined, all technical and/or scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which the invention pertains. Although methods and materials similar or equivalent to those described herein can be used in the practice or testing of embodiments of the invention, exemplary methods and/or materials are described below. In case of conflict, the patent specification, including definitions, will control. In addition, the materials, methods, and examples are illustrative only and are not intended to be necessarily limiting.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] Some embodiments of the invention are herein described, by way of example only, with reference to the accompanying drawings. With specific reference now to the drawings in detail, it is stressed that the particulars shown are by way of example and for purposes of illustrative discussion of embodiments of the invention. In this regard, the description taken with the drawings makes apparent to those skilled in the art how embodiments of the invention may be practiced.

[0022] In the drawings:

FIG. 1A schematically illustrates a view of an exemplary tamper-resistant envelope, according to some embodiments of the present invention;

FIGs. 1B and 1C schematically illustrate side views of the tamper-resistant envelope of FIGURE 1A with open flap and closed flap, respectively, according to some embodiments of the present invention;

FIGs. 2A and 2B schematically illustrate a view of a laminated inner face of a front panel and a rear panel, respectively, in an exemplary tamper-resistant envelope, according to some embodiments of the present invention;

FIG. 2C schematically illustrates a side view of the tamper-resistant envelope in FIGs. 2A and 2B, according to some embodiments of the present invention;

FIG. 3 schematically illustrates a view of an exemplary tamper-resistant envelope including tamper-viewing windows, according to some embodiments of the present invention;

FIGs. 4A and 4B schematically illustrate views of an exemplary front panel and rear panel respectively, including markings, in an exemplary tamper-resistant envelope, according to some embodiments of the present invention;

FIG. 5 schematically illustrates a view of an exemplary tamper-resistant envelope including electrically conducting tamper-evident strips, according to some embodiments of the present invention;

FIG. 6 is a flow chart illustrating an exemplary method of using a tamper-resistant envelope, according to some embodiments of the present invention; and FIG. 7 is a flow chart illustrating an exemplary method of producing a tamper-resistant envelope, according to some embodiments of the present invention.

DESCRIPTION OF EMBODIMENTS OF THE INVENTION

[0023] The present invention, in some embodiments thereof, relates to envelopes and, more particularly, but not exclusively, to tamper-resistant and tamper-evident envelopes.

[0024] An aspect of some embodiments of the present invention relates to a tamper-resistant envelope formed from joining together a first panel and a second panel along three edges to form a pocket between the panels, the first panel extends beyond an opening to the pocket and includes an adherable flap which is adapted to be folded and adhered to both the first panel and the second panel for sealing the pocket. Adhering of the flap to both the first panel and the second panel substantially seals the opening of the pocket. Sealing the opening of the pocket prevents access to the opening (now sealed) from any direction using mechanical means without noticeable damage being caused to the envelope. This substantially prevents tampering with contents placed inside the pocket without the tampering being evident (tamper-evident). Optionally, a tamper-evident feature in the envelope makes the envelope substantially tamper-resistant as a

person wishing to tamper with the envelope will most probably desist from such action if the tampering will be evident. The mechanical means may include an object (tool) suitable to be inserted under a flap for opening the flap. Optionally, the mechanical means may include a use of force for pulling the flap.

[0025] In some embodiments of the present invention, the flap is adhered to the first panel and the second panel using a tamper-evident adhesive which provides a visual indication when the adhesive has been tampered with. Optionally, the adhesive may include a glue and provides an indication of an attempt having been made to change the adhesive properties of the glue, for example by trying to heat the glue to dissolve it, and/or by trying to freeze the glue to cause it to brittle and break. Optionally, the glue changes a color when exposed to temperatures which change its adhesive properties. Optionally, the adhesive properties of the glue are maintained throughout a temperature range from -45°C to 100°C. Optionally, the adhesive properties of the glue are maintained for temperatures above 100°C and/or below -45°C. Additionally or alternatively, the tamper-evident adhesive includes an adhesive tape. Optionally, the adhesive tape is a double-sided adhesive tape. Optionally, the tamper-evident adhesive includes an adhesive film. Optionally, the adhesive tape is a tamper evident tape model 120/87 produced by Label Tech Ltd, Israel, and includes PVC 50µm and an acrylic adhesive. Optionally, a visual message such as, for example, the word "VOID", is formed in the tamper-evident adhesive when tampered with. Additionally or alternatively, the flap may include a tamper-viewing window through which evidence of tampering with the tamper-evident adhesive may be viewed. Optionally, the visual message is displayed through the window. Optionally, the tamper-evident adhesive may include one or more symbols (may include characters, letters, numbers, logos, etc.) invisible to the naked eye and which serve to corroborate that the adhesive has not been replaced.

[0026] In some embodiments of the present invention, the first panel and the second panel are each laminated on an inner face with a material film resistant to a wetter or a wetting agent which may be applied to the envelope for attempting to make the panels temporarily transparent. The laminated inner faces, which are on the side of the first panel and the second panel forming the pocket, are adapted to provide a degree of opacity which substantially prevents viewing of the contents inside the envelope when the wetter is applied to outer faces of the panels (optically opaque). Optionally, the laminate film is a plastic film and includes a polymeric material such as, for example, polyethylene, polypropylene, or nylon, or any combination thereof. Optionally, the laminate film is a carbon-based laminate. Additionally or alternatively, the laminated film prevents liquids from reaching the contents inside the pocket (water-resistant). The laminate film is susceptible to the wetter and changes a color when exposed to the wetter. Additionally or alternatively, the

laminate film is adapted to bloom through the panels when the wetter is applied to the panels and migrates through the panels to the laminate film. Laminating of the inner faces may be done by methods known in the art, and may include cold lamination. Optionally, hot lamination is used. Optionally, a bubble wrap liner is attached to the inner face of each panel for providing mechanical protection to the contents of the envelope (inside the pocket) from impact.

[0027] In some embodiments of the present invention, the three edges along which the first panel and the second panel are joined together to form the pocket each include a tamper-evident seam. The tamper-evident seam includes one or more perforated symbols along a major portion of the seam such that, if the envelope is opened along the edge comprising the seam, at least one of the symbols will be damaged. The damaged symbol may then be readily detected when the envelope is checked for tampering. Optionally, use of the tamper-evident seam is restricted to one of the three edges. Optionally, use of the tamper-evident seam is restricted to two of the three edges. Optionally, tamper-evident symbols are used on the flap. Additionally or alternatively, the tamper-evident seam is embossed with the one or more symbols. Optionally, the tamper-evident seam (and/or the flap) includes at least one dissimilar symbol. Optionally, the one or more symbols are all similar.

[0028] In some embodiments of the present invention, the tamper-evident seam may include an electrical conductor which extends along the seam and is connected to a power source in the envelope. Optionally, the power source is an external source which induces a current in the electric conductor by generating an electromagnetic field (EM) to which the envelope is exposed. Optionally, the electrical conductor includes an electrically conducting paint and/or film. When the seam is opened (which may include being cut), an open circuit is created in the electrical conductor which is detected by a sensor in the envelope. Optionally, the power source includes the sensor. Additionally or alternatively, a visual warning is displayed in the envelope by a chemically reactive display responsive to the open circuit (for example, a change in color of a paint or coating as in electrochromic paints and/or thermochromic paints). Optionally, the visual warning is displayed through a thin film LCD. Optionally, the warning is displayed through a clock visibly included in the envelope which displays the time and date when the open circuit was created. Optionally, the clock is activated by the tampering and counts a period of time since its activation (a counter). Optionally, an audible alarm is activated.

[0029] In some embodiments of the present invention, the electrical conductors are arranged in the envelope such that an open circuit occurs when the pocket is opened. Optionally, the conductors are arranged along the flap and the second panel such that separating the flap from the second panel results in an open circuit.

[0030] In some embodiments of the present invention,

the envelope includes a Radio Frequency Identification Device (RFID) tag for local reading of the envelope's identification. Optionally, the RFID tag is a passive RFID tag. Optionally, the RFID tag is an active tag. Optionally, the RFID tag is a battery-assisted passive tag. Additionally or alternatively, the envelope includes a GPS (Global Positioning System) device for determining a location of the envelope.

[0031] In some embodiments of the present invention, the panels include paper of thickness ranging from 60 gsm (grams per square meter) to 160 gsm, for example, 60 - 90 gsm, 80 - 100 gsm, 90 - 120 gsm, 120 - 160 gsm. Optionally, the panel thickness is greater than 160 gsm. Optionally, the panels include an 80 gram wood free paper model Hadar Top produced by Israel Paper Co. Ltd, in Israel. Optionally, the panels include outer faces which are laminated. Optionally, the panels are water resistant. Optionally, the panels include a cardboard material. Additionally or alternatively, the panels include a plastic material.

[0032] In some embodiments of the present invention, the envelope may be formed from a single panel which is folded along an edge into two sections forming the first panel and the second panel, the first panel including the extension and the flap. In an exemplary embodiment, the envelope includes two edges which are sealed. Optionally, the sealed edges are along the sides of the envelope. Optionally, the sealed edges include one of the sides of the envelope and a bottom edge opposite the flap.

[0033] Before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not necessarily limited in its application to the details of construction and the arrangement of the components and/or methods set forth in the following description and/or illustrated in the drawings and/or the Examples. The invention is capable of other embodiments or of being practiced or carried out in various ways.

[0034] Reference is now made to FIGURE 1A which schematically illustrates a view of an exemplary tamper-resistant envelope **100**, and to FIGURES 1B and 1C which schematically illustrate side views of the tamper-resistant envelope with an open flap **106** prior to closing the envelope, and with the flap closed, respectively, according to some embodiments of the present invention.

[0035] In some embodiments, envelope **100** includes a front panel **102** (second panel) and a rear panel **104** (first panel) which are joined together along three edges by seams **103** to form a pocket **107** between the panels. The seams **103**, which include two side seams and a bottom seam (opposing flap **106**), are tamper-evident. Optionally, seam **103** includes perforated symbols such as letters **116** and/or geometrical shapes **118**. Optionally, letters **116** and/or geometrical shapes **118** are embossed. Pocket **107** is configured for placing inside written/printed material and relatively small items which are to be sent by a sender to a receiver through a courier. The content of envelope **100** is placed inside pocket **107** through an opening **105** to the pocket, which includes a

fourth edge of front panel **102** left unsealed when joining the front panel and rear panel **104** together by seams **103**.

[0036] In some embodiments, rear panel **104** extends beyond opening **105** and includes flap **106** at a distal end of a rear panel extension **104A**. Optionally, rear panel extension **104A** includes a fold line **108** along which flap **106** is folded in a direction towards front panel **102** for adhering to the rear panel extension and to a front panel upper section **102A**. Optionally, fold line **108** includes a depression along which the flap is folded. Optionally, a border of front panel upper section **102A** is delimited by a flap sealing line **110** marking a desired positioning location for a distal end **106A** of flap **106** when the flap is folded. Optionally, flap **106** is adapted to cover all of rear panel extension **104A** and at least a portion of upper section **102A** when folded. Additionally or alternatively, flap **106** is adapted to cover all of rear panel extension **104A** and all of upper section **102A** when folded.

[0037] In some embodiments, flap **106** includes an adhesive **114** for adhering the flap to front panel upper section **102A** and rear panel extension **104A** when folded. Optionally, adhering flap **106** to front panel upper section **102A** and rear panel extension **104A** seals opening **105** and thereby prevents access into pocket **107** through the opening. Optionally, tampering using mechanical means to gain access to opening **105**, regardless from what direction, will cause noticeable damage to envelope **100**. Adhesive **114** may cover a whole surface area of flap **106** between fold line **108** and distal end **106A**. Optionally, adhesive **114** may cover a portion of the surface area of flap **106**. Adhesive **114** may include glue, an adhesive tape, an adhesive film in accordance with the present invention, or any other type of adhesive material suitable for adhering flap **106**. Adhesive **114** is a tamper-evident adhesive. Optionally, when envelope **100** is not in use, adhesive **114** is covered by a removable strip **112**. Optionally, removable strip **112** is adapted to be easily removed with minimal effect on the adhesive characteristics, optionally tamper-evident characteristics, of adhesive **114**. Optionally, removable strip **112** includes silicon and/or a silicon-based material allowing for easy removal of the strip.

[0038] Reference is now made to FIGURES 2A and 2B which schematically illustrate a view of a laminated inner face of an exemplary front panel **202** and an exemplary rear panel **204**, respectively, in an exemplary tamper-resistant envelope **200**, according to some embodiments of the present invention. Reference is also made to FIGURE 2C which schematically illustrates a side view of tamper-resistant envelope **200**, according to some embodiments of the present invention. In some exemplary embodiments, envelope **200** is similar to that shown in FIGURES 1A - 1C with a difference that envelope **200** includes a front panel inner face **202C** covered with a laminate film **220**, a rear panel inner face **204C** covered with the laminate film, and a flap **206** also covered by the laminate film on the side which is adhered. Optionally, laminate film **220** covers a whole of front panel

inner face **202C** (including an area of the seams) or a portion thereof. Optionally, laminate film **220** covers a whole of rear panel inner face **204C** (including an area of the seams) or a portion thereof. Optionally, laminate film **220** covers only the areas of inner face **202C** and **204C** forming a pocket. Additionally or alternatively, laminate film **220** covers a whole of flap **206** or a portion thereof.

[0039] In some embodiments, laminate film **220** includes an optically opaque material for preventing viewing of the contents inside envelope **200** while the envelope is closed. Optionally, laminate film **220** prevents viewing of the contents when front panel **202** and/or rear panel **204** are exposed to a wetter or a wetting agent which may cause temporary transparency of the panels.

[0040] Reference is now made to FIGURE 3 which schematically illustrates a view of an exemplary tamper-resistant envelope **300** including tamper-viewing windows **321** in a flap **306**, according to some embodiments of the present invention.

[0041] In some exemplary embodiments envelope **300** is similar to that shown in FIGURES 1A - 1C at **100** with a difference that envelope **300** includes windows **321** for viewing evidence of tampering with a tamper-evident adhesive **314**. Optionally, envelope **300** is similar to that shown in FIGURES 2A - 2C at **200** with the difference that envelope **300** includes viewing windows **321**.

[0042] In some embodiments, tamper-viewing windows **321** may include holes in flap **306** for viewing adhesive **314**. Optionally, windows **321** include a film (not shown) which allows viewing adhesive **314** while protecting the adhesive from physical contact. Optionally, the film provides protection from direct contact with environmental conditions such as water, dust, and the like. Optionally, the film is a transparent film. Optionally, the film is a filter for viewing color changes (or otherwise invisible symbols) in adhesive **314** if the adhesive has been tampered with.

[0043] Reference is now made to FIGURES 4A and 4B which schematically illustrate views of an exemplary front panel **402** and rear panel **404** respectively, including exemplary markings **422 - 428**, in an exemplary tamper-resistant envelope **400**, according to some embodiments of the present invention.

[0044] In some exemplary embodiments, envelope **400** is similar to that shown in FIGURES 1A - 1C at **100** with a difference that envelope **400** includes markings **422 - 428**. Optionally, envelope **400** is similar to that shown in FIGURES 2A - 2C at **200** with the difference that envelope **400** includes markings **422 - 428**. Optionally, envelope **400** is similar to that shown in FIGURE 3 at **300** with the difference that envelope **400** includes markings **422 - 428**.

[0045] Markings **422 - 428** may include information associated with directing and tracking a movement of envelope **400** while transported by the courier, for example by including a barcode marking **424**, a numerator marking **422**, a sender information marking **426A**, a receiver

information marking **426B**, a general content description marking **426C** (for example, a marking indicating "printed material"), and the like. Optionally, markings **422 - 428** include instructions for the sender and/or the receiver as to a use of envelope **400**, for example as shown at instruction marking **428** which includes envelope sealing instructions.

[0046] Optionally markings **422** and **424** include electronic circuitry used for locating envelope **400** while in transit. Optionally, movement of envelope **400** is tracked. For example, markings **422 - 424** may include a GPS device for determining a position of envelope **400** anywhere in the world (or in specific regions of the world). Optionally, markings **422 - 424** may include an RFID tag for local reading of the envelope's numerator and/or barcode. Optionally, other markings **426A - 426C** may include electronic circuitry for use with the GPS or RFID tag electronics, or for other identification and/or routing purposes. Optionally, the GPS device is removable and may be reused with other envelopes. Optionally, the GPS device is included inside the envelope (is placed inside the pocket of the envelope by the sender and may be removed by receiver, optionally for reuse).

[0047] Reference is now made to FIGURE 5 which schematically illustrates a view of an exemplary tamper-resistant envelope **500** including an exemplary electrical conductor **530** and an exemplary power source **532** for detecting tampering in the envelope, according to some embodiments of the present invention.

[0048] In some exemplary embodiments envelope **500** is similar to that shown in FIGURES 1A - 1C at **100** with a difference that envelope **500** includes electrical conductor **530** and power source **532**. Optionally, envelope **500** is similar to that shown in FIGURES 2A - 2C at **200** with the difference that envelope **500** includes electrical conductor **530** and power source **532**. Optionally, envelope **500** is similar to that shown in FIGURE 3 at **300** with the difference that envelope **500** includes electrical conductor **530** and power source **532**. Optionally, envelope **500** is similar to that shown in FIGURES 4A and 4B at **400** with the difference that envelope **500** includes electrical conductor **530** and power source **532**.

[0049] In some embodiments, electrical conductor **530**, which may include an electrically conducting paint and/or electrically conducting film, extends along seams **503** in envelope **500**. Optionally, when seam **503** is opened (which may include the seam being cut) an open circuit is created in conductor **530**. A sensor optionally included in power source **532** senses the open circuit and causes activation of a warning. Optionally the warning is visual. Additionally or alternatively, a clock optionally included in power source **532** indicates a time and day when the open circuit was formed. Optionally, the clock is a counter activated by the open circuit and initiates counting from the moment of activation. Optionally, the warning is audible. Additionally or alternatively, electrical conductor **530** is arranged along a flap sealing line **510** and/or along an adhesive **514** in a flap **506** such that

the alarm is activated when the flap is tampered with. Optionally, tampering with adhesive **514** will activate the alarm. Optionally, opening a pocket formed between a front panel **502** and a rear panel **504** will activate the alarm.

[0050] Reference is now made to FIGURE 6 which is a flow chart illustrating an exemplary method of using a tamper-resistant envelope, according to some embodiments of the present invention. In describing the method, reference is made to the exemplary embodiments shown in FIGURES 1A - 5, although it should be evident to one skilled in the art that the method may be implemented with any one of the exemplary embodiments disclosed. Furthermore, it should be evident to one skilled in the art that the method described may be varied to include more steps, less steps, a different order of steps, and is not intended to be limiting in any way.

[0051] At **600**, optionally a sender prepares the tamper-resistant envelope **100** for sending by courier to a receiver at a remote location. Optionally, the sender prepares the envelope according to instruction displayed on the rear panel, for example as shown by marking **428** in rear panel **404** in FIGURE 4B. The sender opens pocket **107** and inserts the contents of what is being sent through opening **105** and into the pocket. The sender removes removable strip **112** from tamper-resistant adhesive **112** and folds flap **106** along fold line **108** in a direction towards flap sealing line **110** in front panel **102**. Optionally, prior to folding flap **106**, the sender may check internal tamper-evident features such as, for example, adhesive **114** to verify that there are no signs of tampering with the adhesive (change of color, warning symbols displayed, brittle composition, dissolved portions, and the like). The internal tamper-evident features are those tamper-evident features that may not be checked if envelope **100** is sealed. Optionally, the sender may verify that adhesive **114** includes symbols unique to the adhesive (verifying that the adhesive has not been replaced). Additionally or alternatively, the symbols are not visible to the naked eye. Once distal end **106A** is positioned along flap sealing line **110**, the sender adheres flap **106** to front panel upper section **102A** and to rear panel extension **104A**, sealing pocket **107**. Optionally, the sender includes information as required by optional markings on the front panel, for example markings **422 - 426** as shown in FIGURE 4A. Optionally, the sender examines closed envelope **100** to verify that external tamper-evident features are in proper conditions. The external tamper-evident features includes those tamper-evident features which may be checked if envelope **100** is closed (flap **106** is sealed). This may include checking that tamper-evident seams **103** have no damaged symbols **116** and **118**. Optionally, the sender examines flap windows, for example flap windows **321** as shown in FIGURE 3, to verify that there are no warning messages displayed or no change in color in the adhesive. Optionally, the sender may verify that flap **106** is properly adhered (for example, all edges of the flap and an adhering surface of the flap

are flatly adhered, that is, that there are no raised portions in the flap).

[0052] At **601**, the courier receives envelope **100** from the sender and records applicable data as may be required for transporting the envelope to the receiver, including envelope tracking information. Optionally, the courier may record a numerator identifying the envelope, scan a barcode, obtain data through an RFID tag in the envelope, for example, as shown at markings **422 - 426** in FIGURE 4A. Optionally, the courier may verify that the external tamper-evident features in envelope **100** show no evidence of tampering. Optionally, if envelope **100** includes external tamper-evident features which show signs which may be misinterpreted as tampering, the contents of envelope **100** is placed into a new envelope.

[0053] At **602**, envelope **100** is optionally received at a central distribution center where tracking information is recorded. Optionally, the tracking information includes date and time of entering. The external tamper-evident features in envelope **100** are checked for evidence of tampering.

[0054] At **603**, a determination is made as to whether or not there has been tampering with envelope **100**. If there is no evidence of tampering, go to **605**. Optionally, record departure information which may include date and time of exit.

[0055] At **604**, envelope **100** is investigated for tampering based on the tampering evidence found on the external tampering-evident features. Optionally, the internal tampering-evident features are checked. Corroboration of tampering is investigated.

[0056] At **605**, envelope **100** is optionally received at a transit station where tracking information is recorded, and which may include date and time of entering. The external tamper-evident features in envelope **100** are checked for evidence of tampering.

[0057] At **606**, a determination is made as to whether or not there has been tampering with envelope **100**. If there is no evidence of tampering, go to **607**. Optionally, record departure information which may include date and time of exit. If there is evidence of tampering, go to **604**.

[0058] At **607**, envelope **100** is delivered to the receiver. Optionally, the receiver checks the external tamper-evident features of envelope **100** prior to opening of the envelope. Optionally, the receiver checks the internal tamper-evident features of the envelope following opening of flap **106**.

[0059] At **608**, the receiver decides whether or not there has been tampering with envelope **100**, based on information derived from the external and, optionally internal, tamper-evident features. If the receiver suspects that there has been tampering the envelope is optionally left with the courier; go to **604**. Optionally, the receiver signs for the envelope stating that there are signs of tampering.

[0060] At **609**, the receiver receives envelope **100** following verification that the envelope was not tampered with.

[0061] FIGURE 7 is a flow chart illustrating an exemplary method of producing a tamper-resistant envelope, according to some embodiments of the present invention. In describing the method, reference is made to the exemplary embodiment shown in FIGURES 1A - 5, although it should be evident to one skilled in the art that the method may be implemented with any one of the exemplary embodiments disclosed. Furthermore, it should be evident to one skilled in the art that the method described may be varied to include more steps, less steps, a different order of steps, and is not intended to be limiting in any way.

[0062] At **700**, optionally sheets from which the front panel and the rear panel are prepared are laminated with an optically opaque laminated film; for example laminated film **220** in FIGURES 2A and 2B.

[0063] At **701**, optionally the laminated sheets are cut to form the front panel and the rear panel, the laminated film on an inner face of the front panel and on an inner face of the rear panel; for example front panel **202** with laminated film **220** on inner face **202C** as shown in FIGURE 2B, and rear panel **204** with laminated film **220** on inner face **204C** as shown in FIGURE 2A. Optionally, a bubble wrap liner is attached to inner faces **202C** and **204C** of front panel **202** and rear panel **204**, respectively.

[0064] At **702**, optionally form the tamper-resistant envelope by joining the front panel to the rear panel along three seams, forming a pocket between the panels; for example, envelope **100** formed by joining front panel **102** with rear panel **104** along seams **103**, with pocket **107** formed between the panels.

[0065] At **703**, optionally prepare the tamper-evident seam by perforating or embossing symbols in the seams; for example, symbols **116** and **118** in seams **103** as shown in FIGURE 1A.

[0066] At **704**, optionally prepare the tamper-evident viewing windows in the flap; for example, windows **321** in flap **306** as shown in FIGURE 3.

[0067] At **705**, optionally apply tamper-resistant adhesive to the flap and cover the adhesive with a removable strip so as to avoid inadvertent adhering of the adhesive or inadvertent tampering with the adhesive; for example, adhesive **114** applied to flap **106** and covering a substantial area of the flap between fold line **108** and distal end **106A**, and removable strip **112** placed over that adhesive, as shown in FIGURE 1A.

[0068] At **706**, optionally apply markings to the envelope panels; for example flap sealing line **110** on front panel **102** shown in FIGURE 1A, and markings **422 - 426** on front panel **402** and markings **428** on rear panel **404** as shown in FIGURES 4A and 4B.

[0069] The terms "comprises", "comprising", "includes", "including", "having" and their conjugates mean "including but not limited to". This term encompasses the terms "consisting of" and "consisting essentially of".

[0070] The phrase "consisting essentially of" means that the composition or method may include additional ingredients and/or steps, but only if the additional ingre-

dients and/or steps do not materially alter the basic and novel characteristics of the claimed composition or method.

[0071] As used herein, the singular form "a", "an" and "the" include plural references unless the context clearly dictates otherwise. For example, the term "a compound" or "at least one compound" may include a plurality of compounds, including mixtures thereof.

[0072] The word "exemplary" is used herein to mean "serving as an example, instance or illustration". Any embodiment described as "exemplary" is not necessarily to be construed as preferred or advantageous over other embodiments and/or to exclude the incorporation of features from other embodiments.

[0073] The word "optionally" is used herein to mean "is provided in some embodiments and not provided in other embodiments". Any particular embodiment of the invention may include a plurality of "optional" features unless such features conflict.

[0074] Throughout this application, various embodiments of this invention may be presented in a range format. It should be understood that the description in range format is merely for convenience and brevity and should not be construed as an inflexible limitation on the scope of the invention. Accordingly, the description of a range should be considered to have specifically disclosed all the possible subranges as well as individual numerical values within that range. For example, description of a range such as from 1 to 6 should be considered to have specifically disclosed subranges such as from 1 to 3, from 1 to 4, from 1 to 5, from 2 to 4, from 2 to 6, from 3 to 6 etc., as well as individual numbers within that range, for example, 1, 2, 3, 4, 5, and 6. This applies regardless of the breadth of the range.

[0075] Whenever a numerical range is indicated herein, it is meant to include any cited numeral (fractional or integral) within the indicated range. The phrases "ranging/ranges between" a first indicate number and a second indicate number and "ranging/ranges from" a first indicate number "to" a second indicate number are used herein interchangeably and are meant to include the first and second indicated numbers and all the fractional and integral numerals therebetween.

[0076] It is appreciated that certain features of the invention, which are, for clarity, described in the context of separate embodiments, may also be provided in combination in a single embodiment. Conversely, various features of the invention, which are, for brevity, described in the context of a single embodiment, may also be provided separately or in any suitable subcombination or as suitable in any other described embodiment of the invention. Certain features described in the context of various embodiments are not to be considered essential features of those embodiments, unless the embodiment is inoperative without those elements.

[0077] Although the invention has been described in conjunction with specific embodiments thereof, it is evident that many alternatives, modifications and variations

will be apparent to those skilled in the art. Accordingly, it is intended to embrace all such alternatives, modifications and variations, whereby the scope of the invention is defined by the appended claims.

Claims

1. A tamper-resistant envelope (100; 200; 300; 400; 500) comprising:

a first and a second panel (102, 104; 202, 204; 402, 404; 502, 504) joined together along at least one tamper-evident seam (103; 503) to form a pocket (107) therebetween having an opening (105), said tamper-evident seam (103; 503) having a width configured to provide at least one tamper-evident feature, said tamper-evident feature including at least one of embossing and perforations (116, 118) in said seam (103) formed of both said first and second panels (102, 104; 202, 204; 402, 404; 502, 504), wherein said tamper-evident seam (103; 503) is provided with at least one of said embossing and perforations (116, 118) formed through said first and second panels (102, 104; 202, 204; 402, 404; 502, 504); and

a flap (106; 206; 306; 506) comprising a tamper-evident adhesive (114; 314; 514), said flap (106; 206; 306; 506) distally connected to the first panel (104; 204; 404; 504) along a fold line (108), wherein said adhesive (114; 314; 514) is disposed on a single side of said fold line (108), said flap (106; 206; 306; 506) adapted to adhere to at least a portion of the first panel (104; 204; 404; 504) and at least a portion of the second panel (102; 202; 402; 504) when folded along the fold line (108), said adhesive (114; 314; 514) configured to allow said flap (106; 206; 306; 506) to substantially seal said opening (105), wherein said adhesive (114; 314; 514) is adapted to change a color as a result of tampering with the adhesive (114; 314; 514);

wherein said first and second panels (102, 104; 202, 204; 402, 404; 502, 504) include a laminate film (220) susceptible to a wetter, said laminate film (220) configured to change color when exposed to the wetter;

wherein said adhesive (114; 314; 514) comprises an adhesive film configured to adhere to a portion of said tamper-evident feature including said at least one tamper-evident seam (103; 503) formed of said joined-together first and second panels (102, 104; 202, 204; 402, 404; 502, 504); and

wherein said adhesive film, when adhered to a portion of said tamper-evident feature including said at least one tamper-evident seam (103;

503) formed of said joined-together first and second panels (102, 104; 202, 204; 402, 404; 502, 504), is configured to prevent access to said sealed opening (105) from any direction using a mechanical means configured to be inserted under said flap (106; 206; 306; 506) for opening said flap (106; 206; 306; 506).

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2. The tamper-resistant envelope (100) of claim 1, wherein the at least a portion of the first panel (104) comprises an area (104A) between an opening (105) of the pocket and a fold line (108) along which the flap (106) is folded.

3. The tamper-resistant envelope (100) of claim 1 or 2, wherein the at least one tamper-evident seam (103) comprises three tamper-evident seams (103).

4. The tamper-resistant envelope (100; 500) of any one of claims 1 to 3, wherein the at least a portion of the second panel (102; 502) comprises at least a portion of an area between an opening (105) to the pocket (107) and a flap sealing line (110; 510) demarcating a positioning marker for a distal end of the flap (106; 506).

5. The tamper-resistant envelope (100; 200; 400; 500) of any one of claims 1 to 4, wherein the tamper-evident adhesive (114; 514) substantially covers an area extending from the fold line to a distal end of the flap (106; 206; 506).

6. The tamper-resistant envelope (200) of any one of claims 1 to 5, wherein the laminate film (220) coats at least a portion of an inner face of the first panel (204) and of an inner face of the second panel (202).

7. The tamper-resistant envelope (200) of claim 6, wherein the at least a portion of the inner face of the first panel (204) and of the second panel (202) includes the pocket (107).

8. The tamper-resistant envelope (200) of claim 6, wherein said laminate film (220) comprises a polymer material resistant to a wetter adapted to temporarily make at least one of the first panel and the second panel optically transparent.

9. The tamper-resistant envelope (100; 200; 300; 400; 500) of any one of claims 1 to 8, wherein the at least one tamper-evident seam (103; 503) comprises symbols.

10. The tamper-resistant envelope (500) of any one of claims 1 to 9, wherein the at least one tamper-evident seam (503) comprises an electric conductor (530) for activating a warning when an open circuit is formed in the conductor (530).

11. The tamper-resistant envelope (400) of any one of claims 1 to 10, further comprising a radio frequency identification (422, 424) tag for local reading of said envelope's identification.

12. The tamper-resistant envelope (400) of any one of claims 1 to 11, further comprising a global positioning system device (422, 424) for determining a location of said envelope (400).

13. A method of using a tamper-resistant envelope (100; 200; 300; 400; 500), said method comprising:

checking (602, 603) an external tampering-evident feature in said envelope while transported from a sender in a first location to a receiver in a second location; and

checking (605, 606) the external tampering-evident feature and an internal tampering-evident feature in said envelope when received at the second location by the receiver;

wherein said tamper-resistant envelope (100; 200; 300; 400; 500) comprises:

a first and a second panel (102, 104; 202, 204; 402, 404; 502, 504) joined together along at least one tamper-evident seam (103; 503) to form a pocket (107) therebetween having an opening (105), said tamper-evident seam (103; 503) having a width configured to provide at least one tamper-evident feature, said tamper-evident feature including at least one of embossing and perforations (116, 118) in said seam (103; 503) formed of both said first and second panels (102, 104; 202, 204; 402, 404; 502, 504), wherein said tamper-evident seam (103; 503) is provided with at least one of said embossing and perforations (116, 118) formed through said first and second panels (102, 104; 202, 204; 402, 404; 502, 504); and

a flap (106; 206; 306; 506) comprising a tamper-evident adhesive (114; 314; 514), said flap (106; 206; 306; 506) distally connected to the first panel along a fold line, wherein said adhesive (114; 314; 514) is disposed on a single side of said fold line, said flap (106; 206; 306; 506) adapted to adhere to at least a portion of the first panel and at least a portion of the second panel when folded along the fold line, said adhesive (114; 314; 514) configured to allow said flap (106; 206; 306; 506) to substantially seal said opening, wherein said adhesive (114; 314; 514) is adapted to change a color as a result of tampering with the adhesive (114; 314; 514);

wherein said first and second panels (102, 104; 202, 204; 402, 404; 502, 504) include a laminate film (220) susceptible to a wetter, said laminate film (220) configured to change color when exposed to the wetter;

wherein checking (602, 603, 605, 606) the external tamper-evident feature for evidence of tampering comprises:

at least one of checking a symbol on a tamper-evident seam (103; 503) for damage and viewing a tamper-evident adhesive (114, 314; 514) through a window on the flap (106; 206; 306; 506); and

wherein checking (605, 606) the internal tamper-evident feature for evidence of tampering comprises:

at least one of inspecting a tamper-evident adhesive (114; 314; 514) for at least one of change of color and discoloration and inspecting a tamper-evident adhesive (114; 314; 514) for symbols unique to the adhesive (114; 314; 514);

wherein said adhesive (114; 314; 514) comprises an adhesive film configured to adhere to a portion of said tamper-evident feature including said at least one tamper-evident seam (103; 503) formed of said joined-together first and second panels (102, 104; 202, 204; 402, 404; 502, 504); and

wherein said adhesive film, when adhered to a portion of said tamper-evident feature including said at least one tamper-evident seam (103; 503) formed of said joined-together first and second panels (102, 104; 202, 204; 402, 404; 502, 504), prevents access to said sealed opening (105) from any direction using a mechanical means inserted under said flap (106; 206; 306; 506) for opening said flap (106; 206; 306; 506).

14. A method for producing a tamper-resistant envelope (100; 200; 300; 400; 500) comprising the following steps:

laminating (700) a sheet for making panels with an optically opaque material and including a laminate film (220) susceptible to a wetter, said laminate film (220) configured to change color when exposed to the wetter;

preparing (701) a first panel and a second panel (102, 104; 202, 204; 402, 404; 502, 504) from the sheet wherein the first panel (104; 204; 404; 504) includes a flap (106; 206; 306; 506) distally connected along a fold line (108);

joining together (702) the first panel and the second panel (102, 104; 202, 204; 402, 404; 502, 504) along at least two tamper-evident seams (103; 503) to form a pocket (107) between the panels, said pocket (107) having an opening (105), said tamper-evident seams (103; 503) each having a width configured to provide at least one tamper-evident feature,;

at least one of embossing and perforating symbols (703) along said at least two seams (103; 503) to provide said tamper-evident feature in each said seam formed of both said first and second panels (102, 104; 202, 204; 402, 404; 502, 504), wherein each said tamper-evident seam (103; 503) is provided with at least one of embossing and perforations (116, 118) formed through said first and second panels (102, 104; 202, 204; 402, 404; 502, 504);

cutting a window in the flap (106; 206; 306; 506);

applying adhesive (114; 314; 514) to the flap (106; 206; 306; 506) on a single side of said fold line (108);

covering the adhesive (114; 314; 514) with a removable strip (112);

marking a flap seal line (110) on the second panel (102; 202; 402; 502); and

applying an identification and a tracking marking (422, 424) to at least one of the first panel and the second panel (102, 104; 202, 204; 402, 404; 502, 504);

wherein said adhesive (114; 314; 514) comprises an adhesive film configured to adhere to a portion of said tamper-evident feature including said at least two tamper-evident seams (103; 503) formed of said joined-together first and second panels (102, 104; 202, 204; 402, 404; 502, 504); and

wherein said adhesive film, when adhered to a portion of said tamper-evident feature including said at least two tamper-evident seams (103; 503) formed of said joined-together first and second panels (102, 104; 202, 204; 402, 404; 502, 504), prevents access to said sealed opening (105) from any direction using a mechanical means inserted under said flap (106; 206; 306; 506) for opening said flap (106; 206; 306; 506).

Patentansprüche

1. Manipulationssichere Versandtasche (100; 200; 300; 400; 500), umfassend:

einen ersten und zweiten Bogen (102, 104; 202, 204; 402, 404; 502, 504), die entlang mindestens einer manipulationsanzeigenden Naht (103; 503) zusammengefügt sind, um dazwischen eine Tasche (107) zu bilden, die eine Öff-

nung (105) aufweist, wobei die manipulationsanzeigende Naht (103; 503) eine Breite aufweist, die dazu ausgelegt ist, mindestens ein manipulationsanzeigendes Merkmal bereitzustellen, wobei das manipulationsanzeigende Merkmal mindestens eines von einer Prägung und Perforationen (116, 118) in der Naht (103), die von beiden der ersten und zweiten Bögen (102, 104; 202, 204; 402, 404; 502, 504) gebildet ist, umfasst, wobei die manipulationsanzeigende Naht (103; 503) mit mindestens einem der Prägung und Perforationen (116, 118) bereitgestellt ist, die durch die ersten und zweiten Bögen (102, 104; 202, 204; 402, 404; 502, 504) hindurch gebildet sind; und

eine Lasche (106; 206; 306; 506), die einen manipulationsanzeigenden Klebstoff (114; 314; 514) umfasst, wobei die Lasche (106; 206; 306; 506) distal mit dem ersten Bogen (104; 204; 404; 504) entlang einer Faltlinie (108) verbunden ist, wobei der Klebstoff (114; 314; 514) auf nur einer Seite der Faltlinie (108) angeordnet ist, wobei die Lasche (106; 206; 306; 506) angepasst ist, an mindestens einem Abschnitt des ersten Bogens (104; 204; 404; 504) und mindestens einem Abschnitt des zweiten Bogens (102; 202; 402; 504) zu kleben, wenn entlang der Faltlinie (108) gefaltet wird, wobei der Klebstoff (114; 314; 514) dazu ausgelegt ist, der Lasche (106; 206; 306; 506) zu ermöglichen, die Öffnung (105) im Wesentlichen zu versiegeln, wobei der Klebstoff (114; 314; 514) angepasst ist, als Reaktion auf Manipulation mit dem Klebstoff (114; 314; 514), eine Farbe zu ändern;

wobei die ersten und zweiten Bögen (102, 104; 202, 204; 402, 404; 502, 504) einen Laminatfilm (220) einschließen, der empfindlich gegenüber einem Benetzungsmittel ist, wobei der Laminatfilm (220) darauf ausgelegt ist, die Farbe zu ändern, wenn er dem Benetzungsmittel ausgesetzt wird;

wobei der Klebstoff (114; 314; 514) einen Klebefilm umfasst, der darauf ausgelegt ist, an einem Abschnitt des manipulationsanzeigenden Merkmals, das die mindestens eine manipulationsanzeigende Naht (103; 503) einschließt, die aus den zusammengefügt ersten und zweiten Bögen (102, 104; 202, 204; 402, 404; 502, 504) gebildet ist, zu kleben; und

wobei der Klebefilm, wenn er an einen Abschnitt des manipulationsanzeigenden Merkmals, das die mindestens eine manipulationsanzeigende Naht (103; 503) einschließt, die aus den zusammengefügt ersten und zweiten Bögen (102, 104; 202, 204; 402, 404; 502, 504) gebildet ist, geklebt wird, dazu ausgelegt ist, Zugriff auf die versiegelte Öffnung (105) aus jeder Richtung mittels mechanischen Mitteln, die dazu ausge-

- legt sind, zum Öffnen der Lasche (106; 206; 306; 506) unter die Lasche (106; 206; 306; 506) eingeführt zu werden, zu verhindern.
2. Manipulationssichere Versandtasche (100) nach Anspruch 1, wobei der mindestens eine Abschnitt des ersten Bogens (104) einen Bereich (104A) zwischen einer Öffnung (105) der Tasche und einer Faltlinie (108), entlang welcher die Lasche (106) gefaltet ist, umfasst. 5 10
 3. Manipulationssichere Versandtasche (100) nach Anspruch 1 oder 2, wobei die mindestens eine manipulationsanzeigende Naht (103) drei manipulationsanzeigende Nähte (103) umfasst. 15
 4. Manipulationssichere Versandtasche (100; 500) nach einem der Ansprüche 1 bis 3, wobei der mindestens eine Abschnitt des zweiten Bögen (102; 502) mindestens einen Abschnitt eines Bereichs zwischen einer Öffnung (105) der Tasche (107) und einer Laschensiegellinie (110; 510), die eine Positionsmarkierung für ein distales Ende der Lasche (106; 506) abgrenzt, umfasst. 20 25
 5. Manipulationssichere Versandtasche (100; 200; 400; 500) nach einem der Ansprüche 1 bis 4, wobei der manipulationsanzeigende Klebstoff (114; 514) im Wesentlichen einen Bereich abdeckt, der sich von der Faltlinie zu einem distalen Ende der Lasche (106; 206; 506) erstreckt. 30
 6. Manipulationssichere Versandtasche (200) nach einem der Ansprüche 1 bis 5, wobei der Laminatfilm (220) mindestens einen Abschnitt einer Innenfläche des ersten Bogens (204) und einer Innenfläche des zweiten Bogens (202) überzieht. 35
 7. Manipulationssichere Versandtasche (200) nach Anspruch 6, wobei der mindestens eine Abschnitt der Innenfläche des ersten Bogens (204) und des zweiten Bogens (202) die Tasche (107) einschließt. 40
 8. Manipulationssichere Versandtasche (200) nach Anspruch 6, wobei der Laminatfilm (220) ein benetzungsmittelbeständiges Polymermaterial umfasst, das angepasst ist, mindestens eines des ersten Bogens und des zweiten Bogens vorübergehend optisch transparent zu machen. 45 50
 9. Manipulationssichere Versandtasche (100; 200; 300; 400; 500) nach einem der Ansprüche 1 bis 8, wobei die mindestens eine manipulationsanzeigende Naht (103; 503) Symbole umfasst. 55
 10. Manipulationssichere Versandtasche (500) nach einem der Ansprüche 1 bis 9, wobei die mindestens eine manipulationsanzeigende Naht (503) einen elektrischen Leiter (530) zum Aktivieren einer Warnung umfasst, sobald im Leiter (530) ein offener Stromkreis gebildet ist.
 11. Manipulationssichere Versandtasche (400) nach einem der Ansprüche 1 bis 10, die ferner einen Radiofrequenz-Identifikations- (422, 424) -Tag zum örtlichen Auslesen der Umschlagskennzeichnung umfasst.
 12. Manipulationssichere Versandtasche (400) nach einem der Ansprüche 1 bis 11, die ferner ein Globales Positionsbestimmungssystemgerät (422, 424) zum Bestimmen eines Standorts des Umschlags (400) umfasst.
 13. Verfahren zur Nutzung einer manipulationssicheren Versandtasche (100; 200; 300; 400; 500), das Verfahren umfassend:
 - Überprüfen (602, 603) eines äußeren manipulationsanzeigenden Merkmals der Versandtasche während des Transports von einem Sender an einem ersten Standort zu einem Empfänger an einem zweiten Standort; und
 - Überprüfen (605, 606) des äußeren manipulationsanzeigenden Merkmals und eines inneren manipulationsanzeigenden Merkmals der Versandtasche bei Empfang am zweiten Standort durch den Empfänger;
 wobei die manipulationssichere Versandtasche (100; 200; 300; 400; 500) umfasst: einen ersten und zweiten Bogen (102, 104; 202, 204; 402, 404; 502, 504), der entlang mindestens einer manipulationsanzeigenden Naht (103; 503) zusammengefügt ist, um dazwischen eine Tasche (107) zu bilden, die eine Öffnung (105) aufweist, wobei die manipulationsanzeigende Naht (103; 503) eine Breite aufweist, die dazu ausgelegt ist, mindestens ein manipulationsanzeigendes Merkmal bereitzustellen, wobei das manipulationsanzeigende Merkmal mindestens eines von einer Prägung und Perforationen (116, 118) in der Naht (103; 503), die von sowohl von dem ersten als auch dem zweiten Bogen (102, 104; 202, 204; 402, 404; 502, 504) gebildet ist, umfasst, wobei die manipulationsanzeigende Naht (103; 503) mit mindestens einem der Prägung und Perforationen (116, 118) bereitgestellt ist, die durch den ersten und zweiten Bogen (102, 104; 202, 204; 402, 404; 502, 504) hindurch gebildet sind; und
 - eine Lasche (106; 206; 306; 506), die einen manipulationsanzeigenden Klebstoff (114; 314; 514) umfasst, wobei die Lasche (106; 206; 306; 506) distal mit dem ersten Bogen entlang einer Faltlinie verbunden ist, wobei der Klebstoff (114; 314; 514) auf nur einer Seite der Faltlinie ange-

ordnet ist, wobei die Lasche (106; 206; 306; 506) angepasst ist, mindestens einen Abschnitt des ersten Bogens und mindestens einen Abschnitt des zweiten Bogens zu verkleben, wenn sie entlang der Faltlinie gefaltet wird, wobei der Klebstoff (114; 314; 514) dazu ausgelegt ist, der Lasche (106; 206; 306; 506) zu ermöglichen, die Öffnung im Wesentlichen zu versiegeln, wobei der Klebstoff (114; 314; 514) angepasst ist, als Reaktion auf Manipulation mit dem Klebstoff (114; 314; 514) eine Farbe zu ändern; wobei der erste und zweite Bogen (102, 104; 202, 204; 402, 404; 502, 504) einen Laminatfilm (220) einschließen, der empfindlich gegenüber einem Benetzungsmittel ist, wobei der Laminatfilm (220) darauf ausgelegt ist, die Farbe zu verändern, wenn er dem Benetzungsmittel ausgesetzt wird; wobei das Überprüfen (602, 603, 605, 606), des äußeren manipulationsanzeigenden Merkmals als Manipulationsnachweis Folgendes umfasst:

mindestens eines vom Überprüfen eines Symbols auf einer manipulationsanzeigenden Naht (103; 503) auf Beschädigung und Betrachten eines manipulationsanzeigenden Klebstoffs (114, 314; 514) durch ein Fenster auf der Lasche (106; 206; 306; 506); und

wobei das Überprüfen (605, 606), des inneren manipulationsanzeigenden Merkmals als Manipulationsnachweis Folgendes umfasst:

mindestens eines vom Untersuchen eines manipulationsanzeigenden Klebstoffs (114; 314; 514) auf mindestens eines einer Farbänderung und Entfärbung und Untersuchen eines manipulationsanzeigenden Klebstoffes (114; 314; 514) auf Symbole, die für den Klebstoff (114; 314; 514) einzigartig sind;

wobei der Klebstoff (114; 314; 514) einen Klebefilm umfasst, der darauf ausgelegt ist, einen Abschnitt des manipulationsanzeigenden Merkmals, das die mindestens eine manipulationsanzeigende Naht (103; 503) einschließt, die aus den zusammengeführten ersten und zweiten Bögen (102, 104; 202, 204; 402, 404; 502, 504) gebildet ist, zu verkleben; und wobei der Klebefilm, wenn er an einen Abschnitt des manipulationsanzeigenden Merkmals, das die mindestens eine manipulationsanzeigende Naht (103; 503) einschließt, die aus den zusammengeführten ersten und zweiten Bögen (102, 104; 202, 204; 402, 404; 502, 504) gebildet ist, geklebt wird, Zugriff auf die versiegelte Öffnung

(105) aus jeder Richtung mittels mechanischen Mitteln, die unter der Lasche (106; 206; 306; 506) zum Öffnen der Lasche (106; 206; 306; 506) eingeführt zu werden, verhindert.

14. Verfahren zur Herstellung einer manipulationssicheren Versandtasche (100; 200; 300; 400; 500), das folgende Schritte umfasst:

Laminieren (700) eines Blattes zum Herstellen von Bögen mit einem optisch undurchsichtigen Material, das einen Laminatfilm (220) umfasst, der empfindlich gegenüber einem Benetzungsmittel ist, wobei der Laminatfilm (220) darauf ausgelegt ist, seine Farbe zu ändern, wenn er dem Benetzungsmittel ausgesetzt wird; Anfertigen (701) eines ersten und eines zweiten Bogens (102, 104; 202, 204; 402, 404; 502, 504) aus dem Blatt, wobei der erste Bogen (104; 204; 404; 504) eine Lasche (106; 206; 306; 506) einschließt, die distal entlang einer Faltlinie (108) verbunden ist; Zusammenfügen (702) des ersten und zweiten Bogens (102, 104; 202, 204; 402, 404; 502, 504) entlang mindestens zwei manipulationsanzeigender Nähte (103; 503), um eine Tasche (107) zwischen den Bögen zu bilden, wobei die Tasche (107) eine Öffnung (105) aufweist, wobei die manipulationsanzeigenden Nähte (103; 503) jeweils eine Breite aufweisen, die darauf ausgerichtet ist, mindestens ein manipulationsanzeigendes Merkmal bereitzustellen; mindestens eines von einer Prägung und Perforierung von Symbolen (703) entlang der mindestens zwei Nähte (103; 503), um das manipulationsanzeigende Merkmal in jeder der Nähte bereitzustellen, die von beiden der ersten und zweiten Bögen (102, 104; 202, 204; 402, 404; 502, 504) gebildet sind, wobei jede manipulationsanzeigende Naht (103; 503) mit mindestens einem der Prägung und Perforationen (116, 118) bereitgestellt ist, die durch die ersten und zweiten Bögen (102, 104; 202, 204; 402, 404; 502, 504) hindurch gebildet sind; Schneiden eines Fensters in die Lasche (106; 206; 306; 506); Auftragen von Klebstoff (114; 314; 514) auf die Lasche (106; 206; 306; 506) auf nur eine Seite der Faltlinie (108); Bedecken des Klebstoffs (114; 314; 514) mit einem entfernbaren Streifen (112); Markieren einer Laschensiegellinie (110) auf dem zweiten Bogen (102; 202; 402; 502); und Aufbringen einer Identifizierungs- und Nachverfolgungskennzeichnung (422, 424) auf mindestens einem des ersten Bogens und des zweiten Bogens (102, 104; 202, 204; 402, 404; 502, 504); wobei der Klebstoff (114; 314; 514) einen Kle-

befilm umfasst, der darauf ausgelegt ist, einen Abschnitt des manipulationsanzeigenden Merkmals, das die mindestens zwei manipulationsanzeigenden Nähte (103; 503) einschließt, die aus den zusammengeführten ersten und zweiten Bögen (102, 104; 202, 204; 402, 404; 502, 504) gebildet sind, zu verkleben; und wobei der Klebefilm, wenn er an einen Abschnitt des manipulationsanzeigenden Merkmals, das die mindestens zwei manipulationsanzeigenden Nähte (103; 503) einschließt, die aus den zusammengeführten ersten und zweiten Bögen (102, 104; 202, 204; 402, 404; 502, 504) gebildet sind, geklebt wird, Zugriff auf die versiegelte Öffnung (105) aus jeder Richtung mittels mechanischer Mittel, die unter die Lasche (106; 206; 306; 506) zum Öffnen der Lasche (106; 206; 306; 506) eingeführt werden, verhindert.

Revendications

1. Enveloppe inviolable (100 ; 200 ; 300 ; 400 ; 500) comprenant :

des premier et deuxième panneaux (102, 104 ; 202, 204 ; 402, 404 ; 502, 504) joints l'un à l'autre le long d'au moins une jointure d'invio-
labilité (103 ; 503) pour former une poche (107)
entre eux ayant une ouverture (105), ladite jointure d'invio-
labilité (103 ; 503) présentant une lar-
geur configurée pour fournir au moins une ca-
ractéristique d'invio-
labilité, ladite caractéristique d'invio-
labilité comprenant au moins l'un d'un gaufrage et de perforations (116, 118) dans
ladite jointure (103) constituée desdits premier
et deuxième panneaux (102, 104 ; 202, 204 ;
402, 404 ; 502, 504), dans laquelle ladite jointure
d'invio-
labilité (103 ; 503) est pourvue d'au moins
l'un desdits gaufrage et perforations (116, 118)
formés à travers lesdits premier et deuxième
panneaux (102, 104 ; 202, 204 ; 402, 404 ; 502,
504) ; et
un rabat (106 ; 206 ; 306 ; 506) comprenant un
adhésif d'invio-
labilité (114 ; 314 ; 514), ledit ra-
bat (106 ; 206 ; 306 ; 506) étant raccordé de ma-
nière distale au premier panneau (104 ; 204 ;
404 ; 504) le long d'une ligne de pli (108), dans
laquelle ledit adhésif (114 ; 314 ; 514) est dis-
posé sur un côté unique de ladite ligne de pli
(108), ledit rabat (106 ; 206 ; 306 ; 506) étant
apte à adhérer à au moins une portion du pre-
mier panneau (104 ; 204 ; 404 ; 504) et à au
moins une portion du deuxième panneau (102 ;
202 ; 402 ; 502) lorsqu'il est plié le long de la
ligne de pli (108), ledit adhésif (114 ; 314 ; 514)
étant configuré pour permettre au dit rabat (106 ;
206 ; 306 ; 506) de sceller sensiblement ladite

ouverture (105), dans laquelle ledit adhésif
(114 ; 314 ; 514) est apte à changer de couleur
en cas d'altération de l'adhésif (114 ; 314 ; 514) ;
dans laquelle lesdits premier et deuxième pan-
neaux (102, 104 ; 202, 204 ; 402, 404 ; 502, 504)
comprennent un film stratifié (220) réagissant à
un humecteur, ledit film stratifié (220) étant con-
figuré pour changer de couleur lorsqu'il est ex-
posé à l'humecteur ;
dans lequel ledit adhésif (114 ; 314 ; 514) com-
prend un film adhésif configuré pour adhérer à
une portion de ladite caractéristique d'invio-
labilité comprenant ladite au moins une jointure d'in-
violabilité (103 ; 503) constituée desdits premier
et deuxième panneaux (102, 104 ; 202, 204 ;
402, 404 ; 502, 504) joints l'un à l'autre ; et
dans laquelle ledit film adhésif, lorsqu'il a adhéré
à une portion de ladite caractéristique d'invio-
labilité comprenant ladite au moins une jointure
d'invio-
labilité (103 ; 503) constituée desdits pre-
mier et deuxième panneaux (102, 104 ; 202,
204 ; 402, 404 ; 502, 504) joints l'un à l'autre,
est configuré pour empêcher tout accès à ladite
ouverture scellée (105) dans n'importe quel
sens en utilisant un moyen mécanique configuré
pour être inséré sous ledit rabat (106 ; 206 ;
306 ; 506) pour ouvrir ledit rabat (106 ; 206 ;
306 ; 506).

2. Enveloppe inviolable (100) selon la revendication 1, dans laquelle l'au moins une portion du premier panneau (104) comprend une zone (104A) entre une ouverture (105) de la poche et une ligne de pli (108) le long de laquelle le rabat (106) est plié.
3. Enveloppe inviolable (100) selon la revendication 1 ou 2, dans laquelle l'au moins une jointure d'invio-
labilité (103) comprend trois jointures d'invio-
labilité (103).
4. Enveloppe inviolable (100 ; 500) selon l'une quel-
conque des revendications 1 à 3, dans laquelle l'au
moins une portion du deuxième panneau (102 ; 502)
comprend au moins une portion d'une zone entre
une ouverture (105) de la poche (107) et une ligne
de scellement de rabat (110 ; 510) démarquant un
marqueur de positionnement pour une extrémité dis-
tale du rabat (106 ; 506).
5. Enveloppe inviolable (100 ; 200 ; 400 ; 500) selon
l'une quelconque des revendications 1 à 4, dans la-
quelle l'adhésif d'invio-
labilité (114 ; 514) recouvre
sensiblement une zone s'étendant de la ligne de pli
à une extrémité distale du rabat (106 ; 206 ; 506).
6. Enveloppe inviolable (200) selon l'une quelconque
des revendications 1 à 5, dans laquelle le film stratifié
(220) recouvre au moins une portion d'une face in-

térieure du premier panneau (204) et d'une face intérieure du deuxième panneau (202).

7. Enveloppe inviolable (200) selon la revendication 6, dans laquelle l'au moins une portion de la face intérieure du premier panneau (204) et du deuxième panneau (202) comprend la poche (107). 5
8. Enveloppe inviolable (200) selon la revendication 6, dans laquelle ledit film stratifié (220) comprend un matériau polymère résistant à un humecteur apte à rendre provisoirement au moins l'un du premier panneau et du deuxième panneau optiquement transparent. 10
9. Enveloppe inviolable (100 ; 200 ; 300 ; 400 ; 500) selon l'une quelconque des revendications 1 à 8, dans laquelle l'au moins une jointure d'inviolabilité (103 ; 503) comprend des symboles. 15
10. Enveloppe inviolable (500) selon l'une quelconque des revendications 1 à 9, dans laquelle l'au moins une jointure d'inviolabilité (503) comprend un conducteur électrique (530) pour activer un avertissement lorsqu'un circuit ouvert est formé dans le conducteur (530). 20
11. Enveloppe inviolable (400) selon l'une quelconque des revendications 1 à 10, comprenant en outre une étiquette d'identification de radiofréquences (422, 424) pour une lecture locale d'une identification de ladite enveloppe. 25
12. Enveloppe inviolable (400) selon l'une quelconque des revendications 1 à 11, comprenant en outre un dispositif de système de positionnement mondial (422, 424) pour déterminer un emplacement de ladite enveloppe (400). 30
13. Procédé d'utilisation d'une enveloppe inviolable (100 ; 200 ; 300 ; 400 ; 500), ledit procédé comprenant : 35
 - le contrôle (602, 603) d'une caractéristique d'inviolabilité externe dans ladite enveloppe au cours de son transport d'un expéditeur à un premier emplacement à un destinataire à un deuxième emplacement ; et 40
 - le contrôle (605, 606) de la caractéristique d'inviolabilité externe et d'une caractéristique d'inviolabilité interne dans ladite enveloppe à sa réception au deuxième emplacement par le destinataire 45
 - dans lequel ladite enveloppe inviolable (100 ; 200 ; 300 ; 400 ; 500) comprend : 50
 - des premier et deuxième panneaux (102, 104 ; 202, 204 ; 402, 404 ; 502, 504) joints 55

l'un à l'autre le long d'au moins une jointure d'inviolabilité (103 ; 503) pour former une poche (107) entre eux ayant une ouverture (105), ladite jointure d'inviolabilité (103 ; 503) présentant une largeur configurée pour fournir au moins une caractéristique d'inviolabilité, ladite caractéristique d'inviolabilité comprenant au moins l'un d'un gaufrage et de perforations (116, 118) dans ladite jointure (103 ; 503) constituée desdits premier et deuxième panneaux (102, 104 ; 202, 204 ; 402, 404 ; 502, 504), dans lequel ladite jointure d'inviolabilité (103 ; 503) est pourvue d'au moins l'un desdits gaufrage et perforations (116, 118) formés à travers lesdits premier et deuxième panneaux (102, 104 ; 202, 204 ; 402, 404 ; 502, 504) ; et un rabat (106 ; 206 ; 306 ; 506) comprenant un adhésif d'inviolabilité (114 ; 314 ; 514), ledit rabat (106 ; 206 ; 306 ; 506) étant raccordé de manière distale au premier panneau le long d'une ligne de pli, dans lequel ledit adhésif (114 ; 314 ; 514) est disposé sur un côté unique de ladite ligne de pli, ledit rabat (106 ; 206 ; 306 ; 506) étant apte à adhérer à au moins une portion du premier panneau (104 ; 204 ; 404 ; 504) et à au moins une portion du deuxième panneau lorsqu'il est plié le long de la ligne de pli, ledit adhésif (114 ; 314 ; 514) étant configuré pour permettre au dit rabat (106 ; 206 ; 306 ; 506) de sceller sensiblement ladite ouverture (105), dans lequel ledit adhésif (114 ; 314 ; 514) est apte à changer de couleur en cas d'altération de l'adhésif (114 ; 314 ; 514) ;

dans lequel lesdits premier et deuxième panneaux (102, 104 ; 202, 204 ; 402, 404 ; 502, 504) comprennent un film stratifié (220) réagissant à un humecteur, ledit film stratifié (220) étant configuré pour changer de couleur lorsqu'il est exposé à l'humecteur ; dans lequel le contrôle (602, 603, 605, 606) de la caractéristique d'inviolabilité externe à la recherche d'une altération comprend :

au moins l'un d'un contrôle d'un symbole sur une jointure d'inviolabilité (103 ; 503) à la recherche d'une détérioration et d'une visualisation d'un adhésif d'inviolabilité (114 ; 314 ; 514) à travers une fenêtre sur le rabat (106 ; 206 ; 306 ; 506) ; et

dans lequel le contrôle (605, 606) de la caractéristique d'inviolabilité interne à la recherche d'une altération comprend :

- au moins l'une d'une inspection d'un adhésif d'inviolabilité (114 ; 314 ; 514) à la recherche d'au moins l'un d'un changement de couleur et d'une décoloration, et d'une inspection d'un adhésif d'inviolabilité (114 ; 314 ; 514) à la recherche de symboles uniques à l'adhésif (114 ; 314 ; 514) ;
- dans lequel ledit adhésif (114 ; 314 ; 514) comprend un film adhésif configuré pour adhérer à une portion de ladite caractéristique d'inviolabilité comprenant ladite au moins une jointure d'inviolabilité (103 ; 503) constituée desdits premier et deuxième panneaux (102, 104 ; 202, 204 ; 402, 404 ; 502, 504) joints l'un à l'autre ; et dans lequel ledit film adhésif, lorsqu'il a adhéré à une portion de ladite caractéristique d'inviolabilité comprenant ladite au moins une jointure d'inviolabilité (103 ; 503) constituée desdits premier et deuxième panneaux (102, 104 ; 202, 204 ; 402, 404 ; 502, 504) joints l'un à l'autre, empêche tout accès à ladite ouverture scellée (105) dans n'importe quel sens en utilisant un moyen mécanique inséré sous ledit rabat (106 ; 206 ; 306 ; 506) pour ouvrir ledit rabat (106 ; 206 ; 306 ; 506).
14. Procédé de production d'une enveloppe inviolable (100 ; 200 ; 300 ; 400 ; 500) comprenant les étapes suivantes :
- la stratification (700) d'une feuille pour réaliser des panneaux avec un matériau optiquement opaque et comprenant un film stratifié (220) réagissant à un humecteur, ledit film stratifié (220) étant configuré pour changer de couleur lorsqu'il est exposé à un humecteur ;
- la préparation (701) de premier et deuxième panneaux (102, 104 ; 202, 204 ; 402, 404 ; 502, 504) à partir de la feuille, dans lequel le premier panneau (104 ; 204 ; 404 ; 504) comprend un rabat (106 ; 206 ; 306 ; 506) raccordé de manière distale le long d'une ligne de pli (108) ;
- la jonction (702) des premier et deuxième panneaux (102, 104 ; 202, 204 ; 402, 404 ; 502, 504) l'un à l'autre le long d'au moins deux jointures d'inviolabilité (103 ; 503) pour former une poche (107) entre les panneaux, ladite poche (107) comportant une ouverture (105), chacune desdites jointures d'inviolabilité (103 ; 503) présentant une largeur configurée pour fournir au moins une caractéristique d'inviolabilité ;
- au moins l'un du gaufrage et de la perforation de symboles (703) le long desdites au moins deux jointures (103 ; 503) pour fournir ladite caractéristique d'inviolabilité dans chaque dite jointure constituée desdits premier et deuxième panneaux (102, 104 ; 202, 204 ; 402, 404 ; 502,

504), dans lequel chaque dite jointure d'inviolabilité (103 ; 503) est pourvue d'au moins l'un d'un gaufrage et de perforations (116, 118) formés à travers lesdits premier et deuxième panneaux (102, 104 ; 202, 204 ; 402, 404 ; 502, 504) ;

le découpage d'une fenêtre dans le volet (106 ; 206 ; 306 ; 506) ;

l'application d'un adhésif (114 ; 314 ; 514) sur le volet (106 ; 206 ; 306, 506) sur un côté unique de ladite ligne de pli (108) ;

le recouvrement de l'adhésif (114 ; 314 ; 514) avec une bande amovible (112) ;

le marquage d'une ligne de scellement de rabat (110) sur le deuxième panneau (102 ; 202 ; 402 ; 502) ; et

l'application d'une identification et d'un marquage de suivi (422, 424) sur au moins l'un du premier panneau et du deuxième panneau (102, 104 ; 202, 204 ; 402, 404 ; 502, 504) ;

dans lequel ledit adhésif (114 ; 314 ; 514) comprend un film adhésif configuré pour adhérer à une portion de ladite caractéristique d'inviolabilité comprenant lesdites au moins deux jointures d'inviolabilité (103 ; 503) constituées desdits premier et deuxième panneaux (102, 104 ; 202, 204 ; 402, 404 ; 502, 504) joints l'un à l'autre ; et dans lequel ledit film adhésif, lorsqu'il a adhéré à une portion de ladite caractéristique d'inviolabilité comprenant lesdites au moins deux jointures d'inviolabilité (103 ; 503) constituées desdits premier et deuxième panneaux (102, 104 ; 202, 204 ; 402, 404 ; 502, 504) joints l'un à l'autre, empêche tout accès à ladite ouverture scellée (105) dans n'importe quel sens en utilisant un moyen mécanique inséré sous ledit rabat (106 ; 206 ; 306 ; 506) pour ouvrir ledit rabat (106 ; 206 ; 306 ; 506).

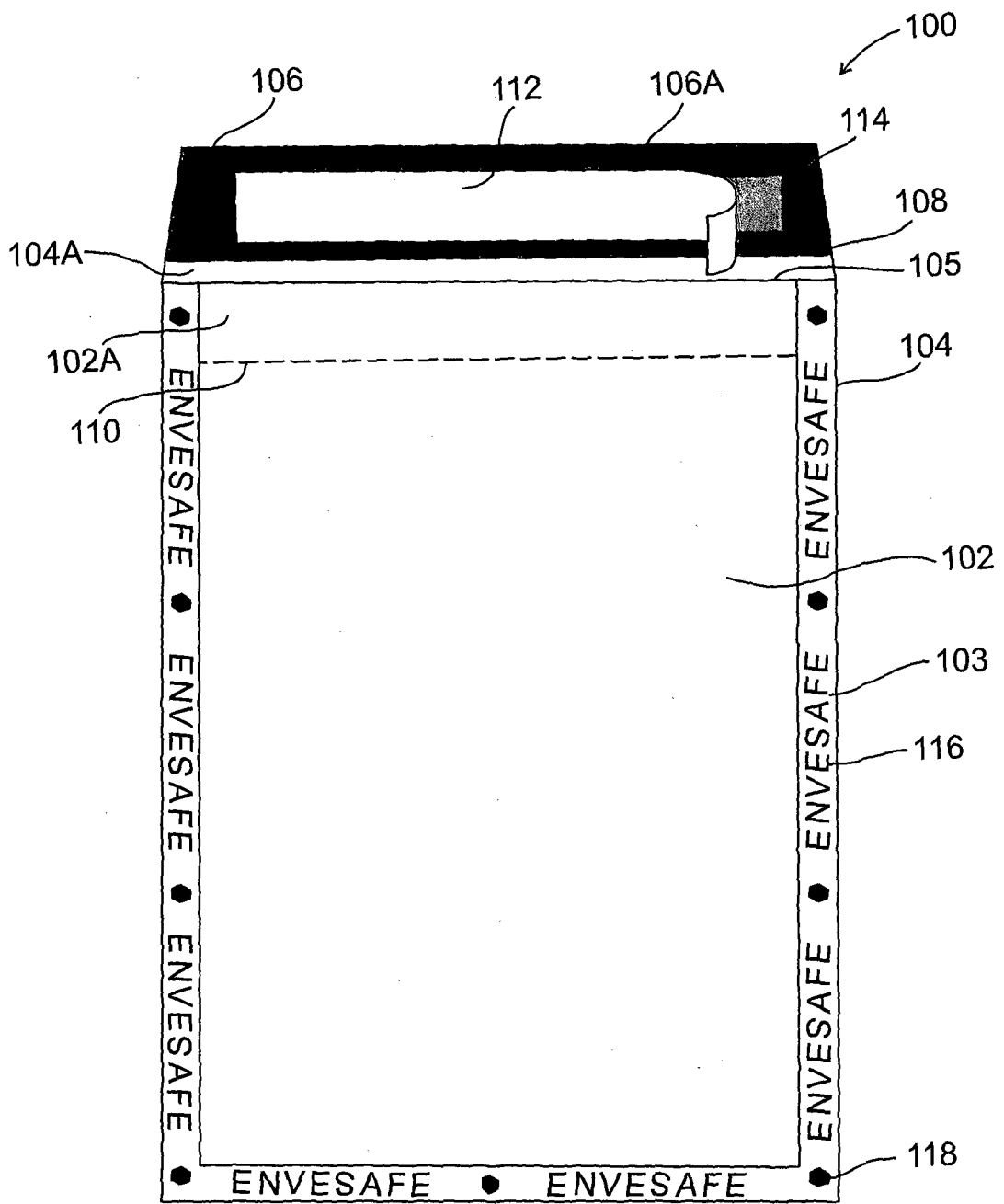


FIG. 1A

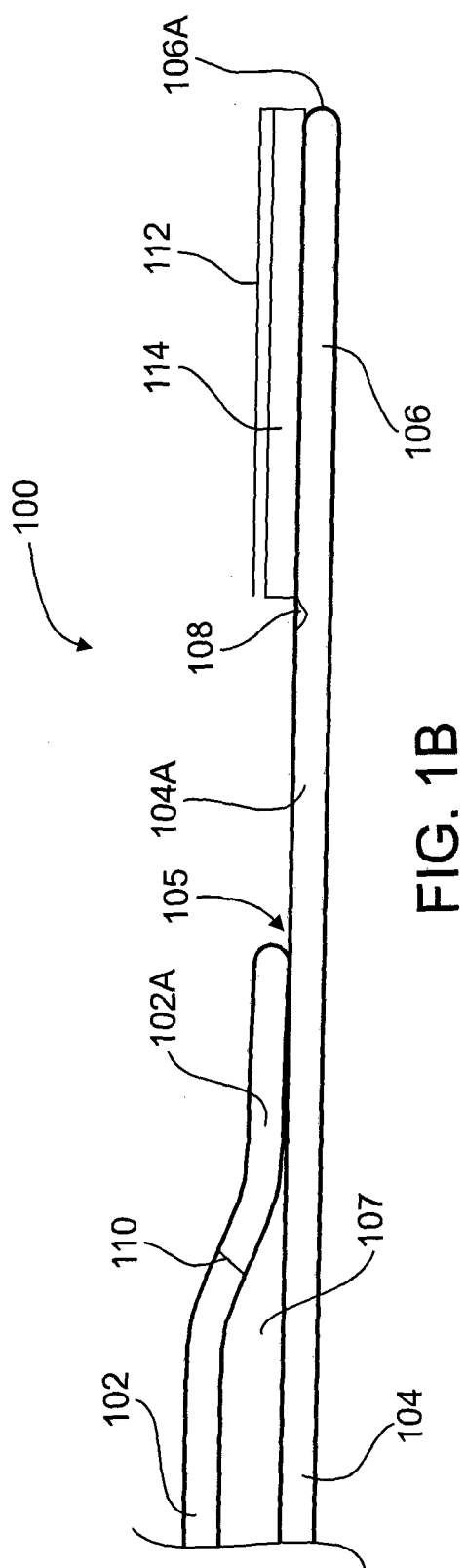


FIG. 1B

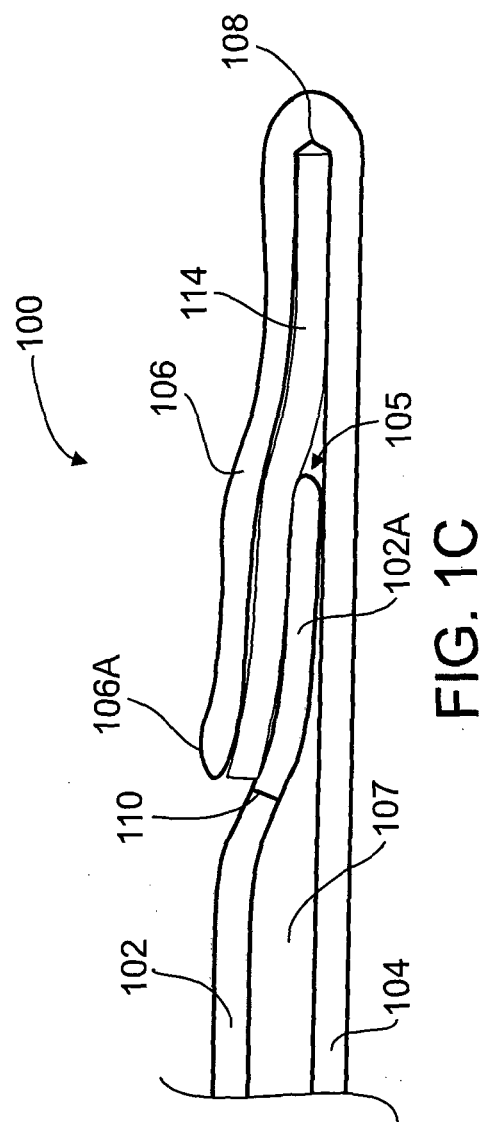


FIG. 1C

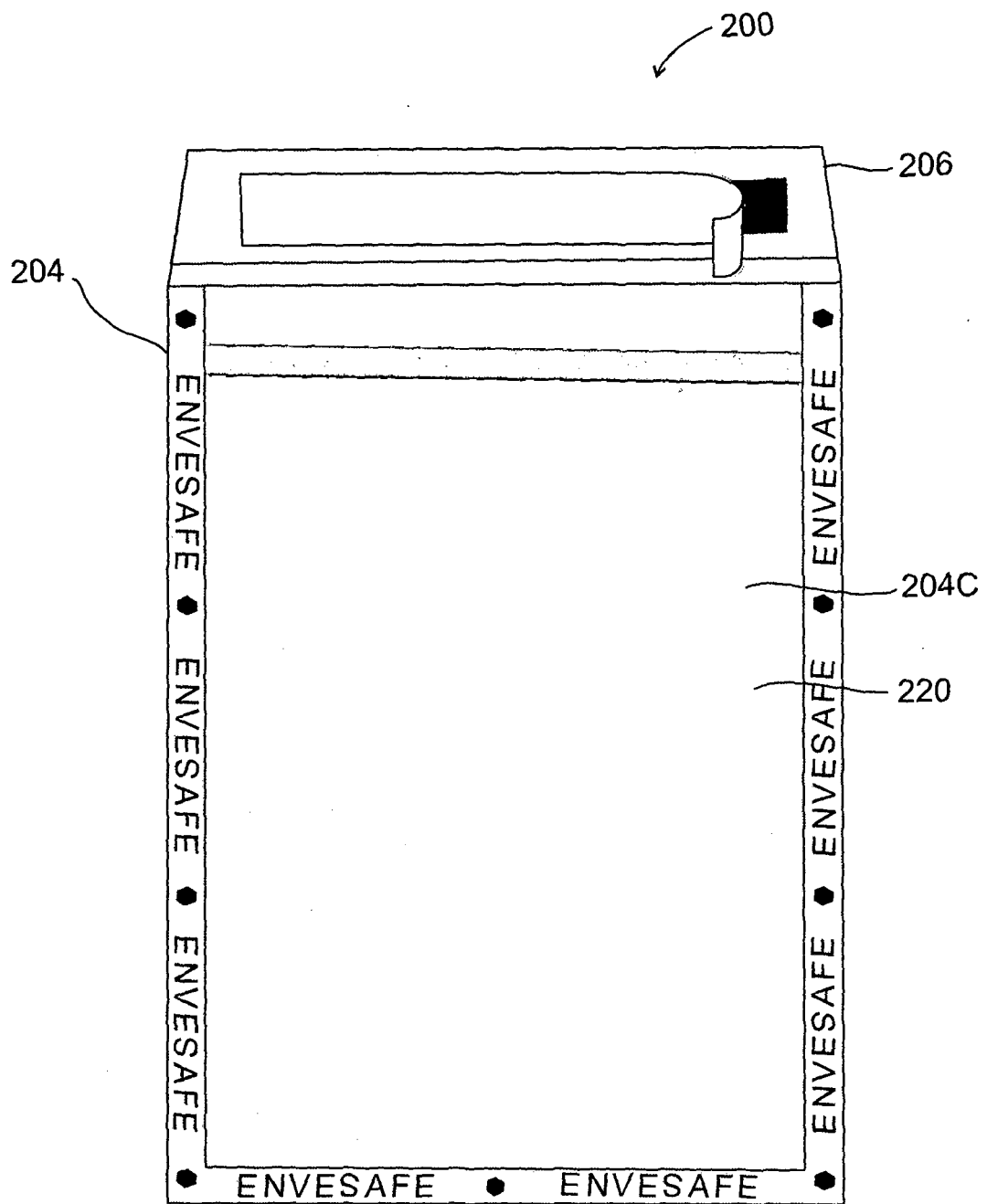


FIG. 2A

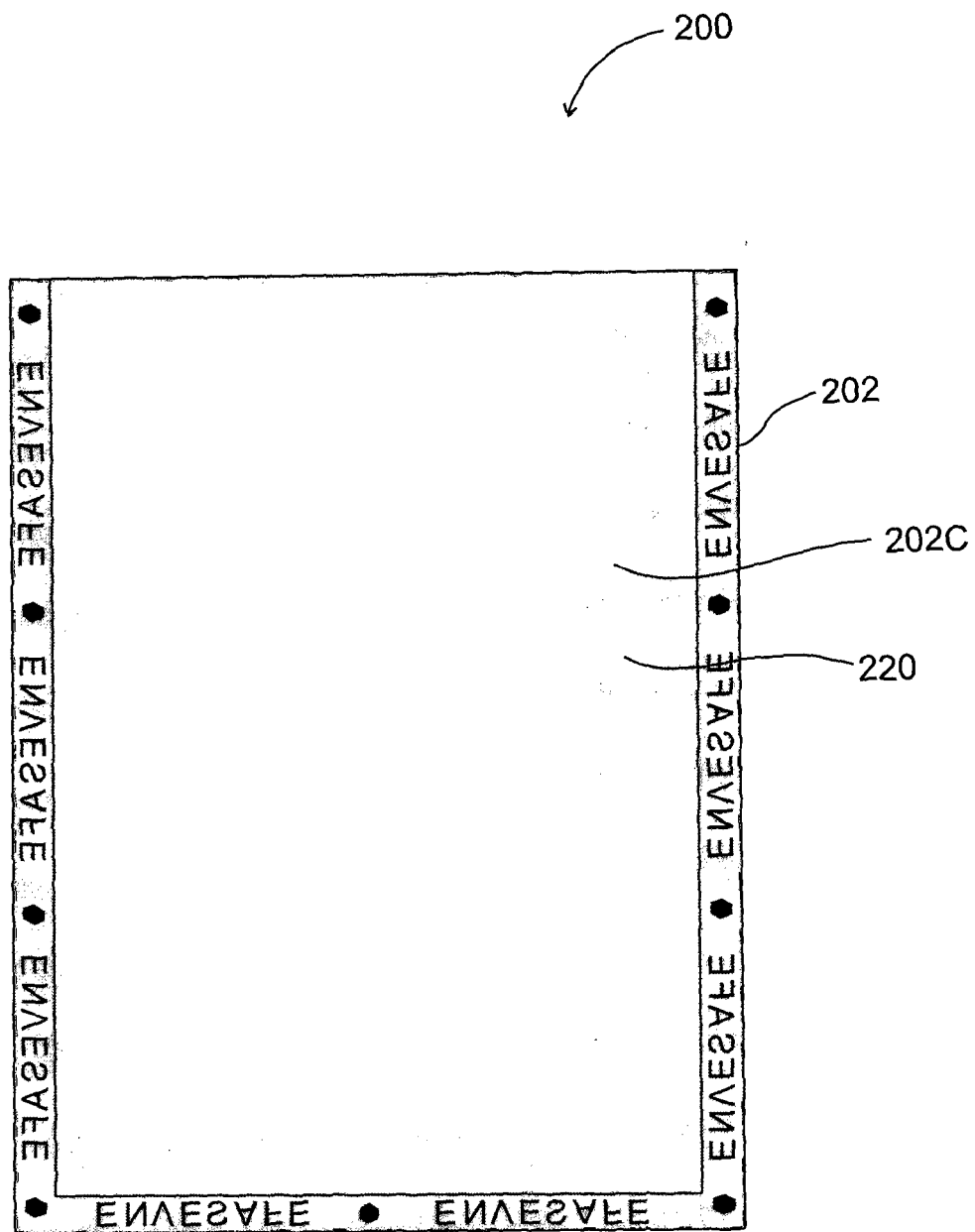


FIG. 2B

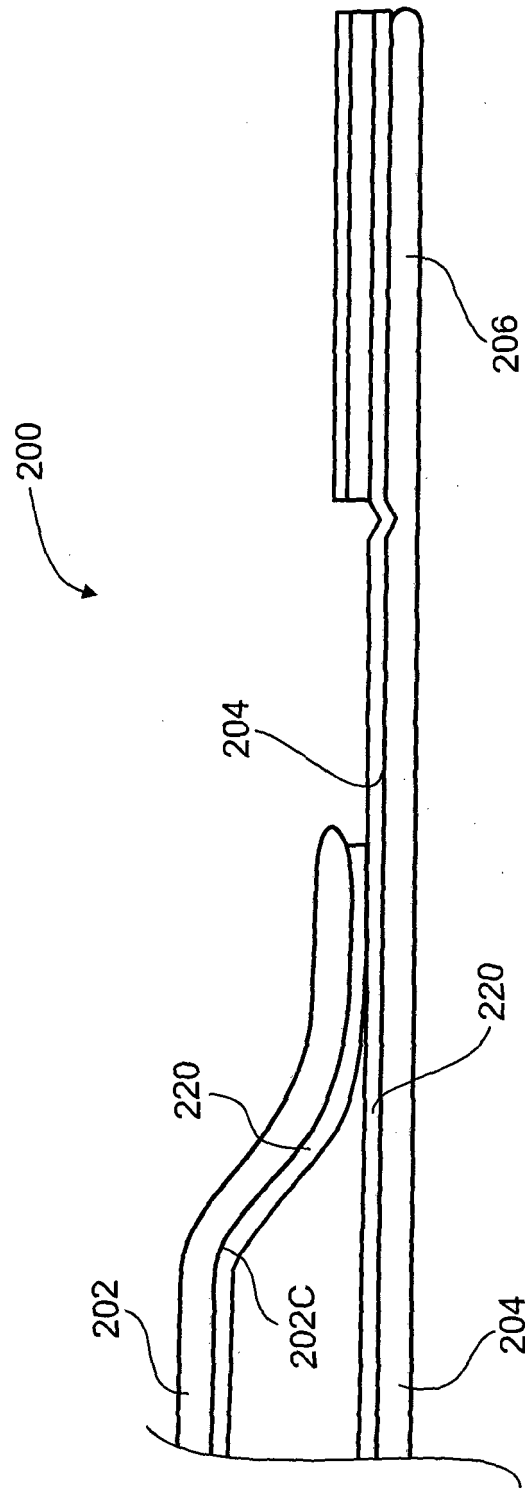


FIG. 2C

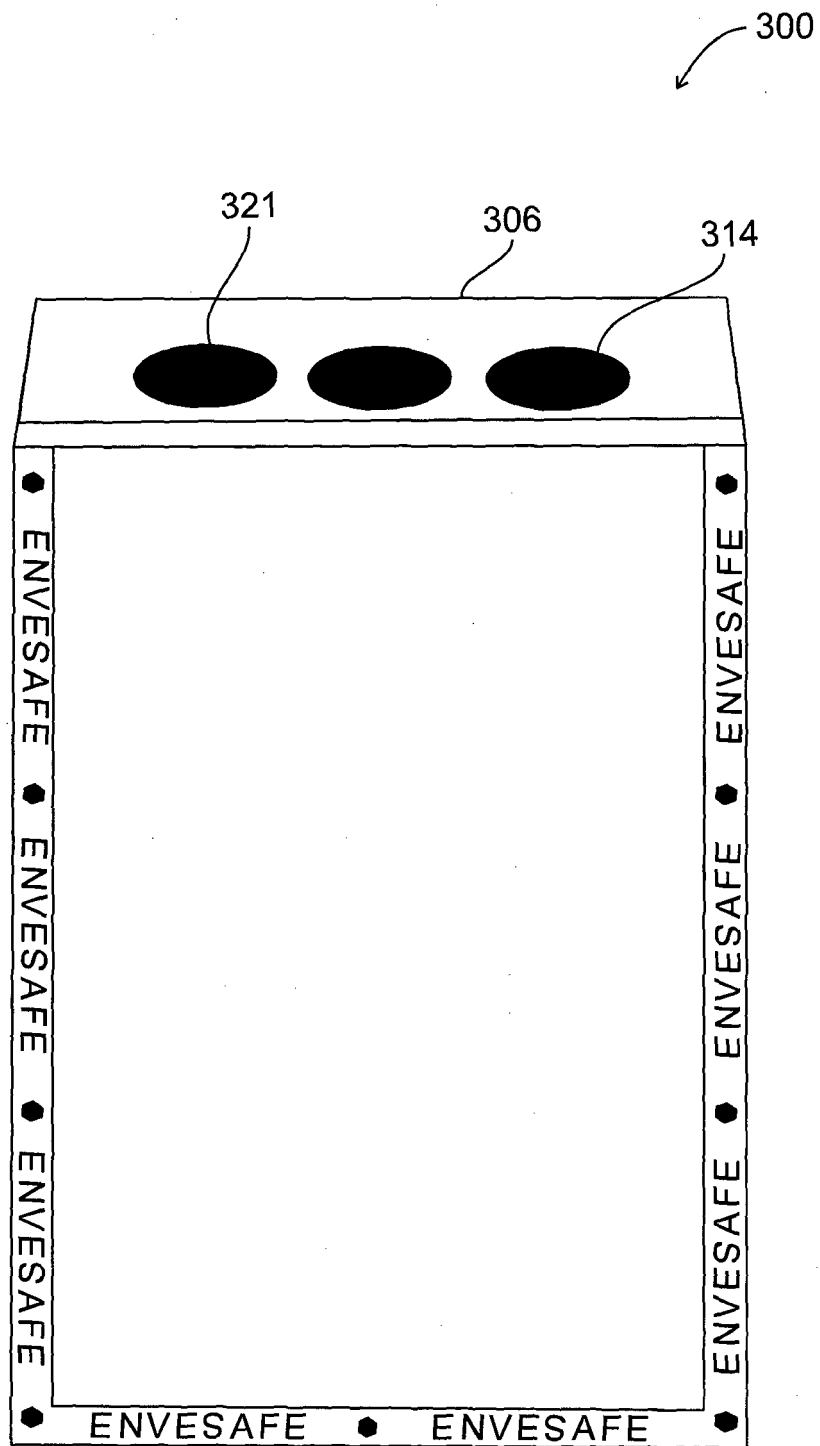


FIG. 3

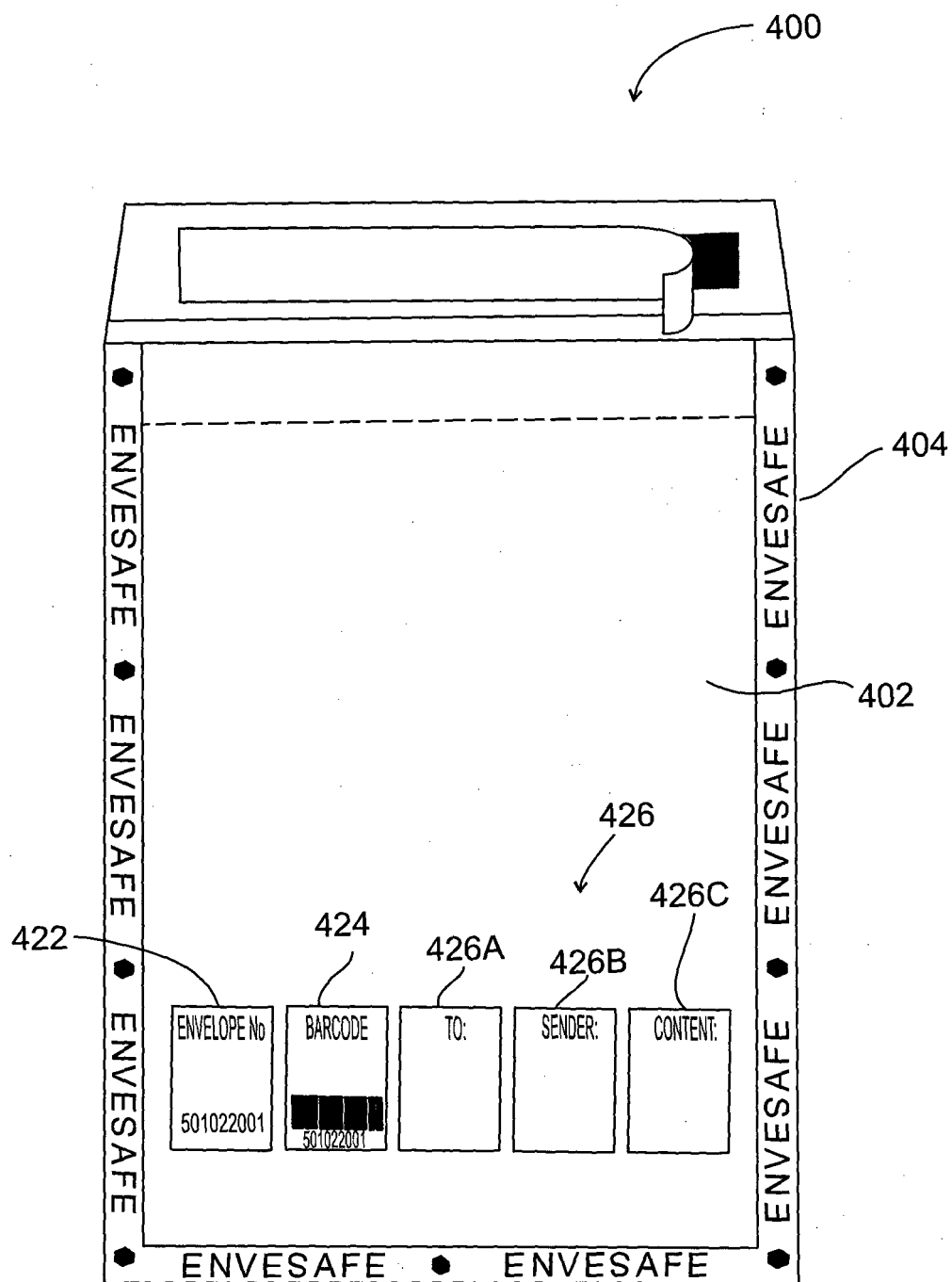


FIG. 4A

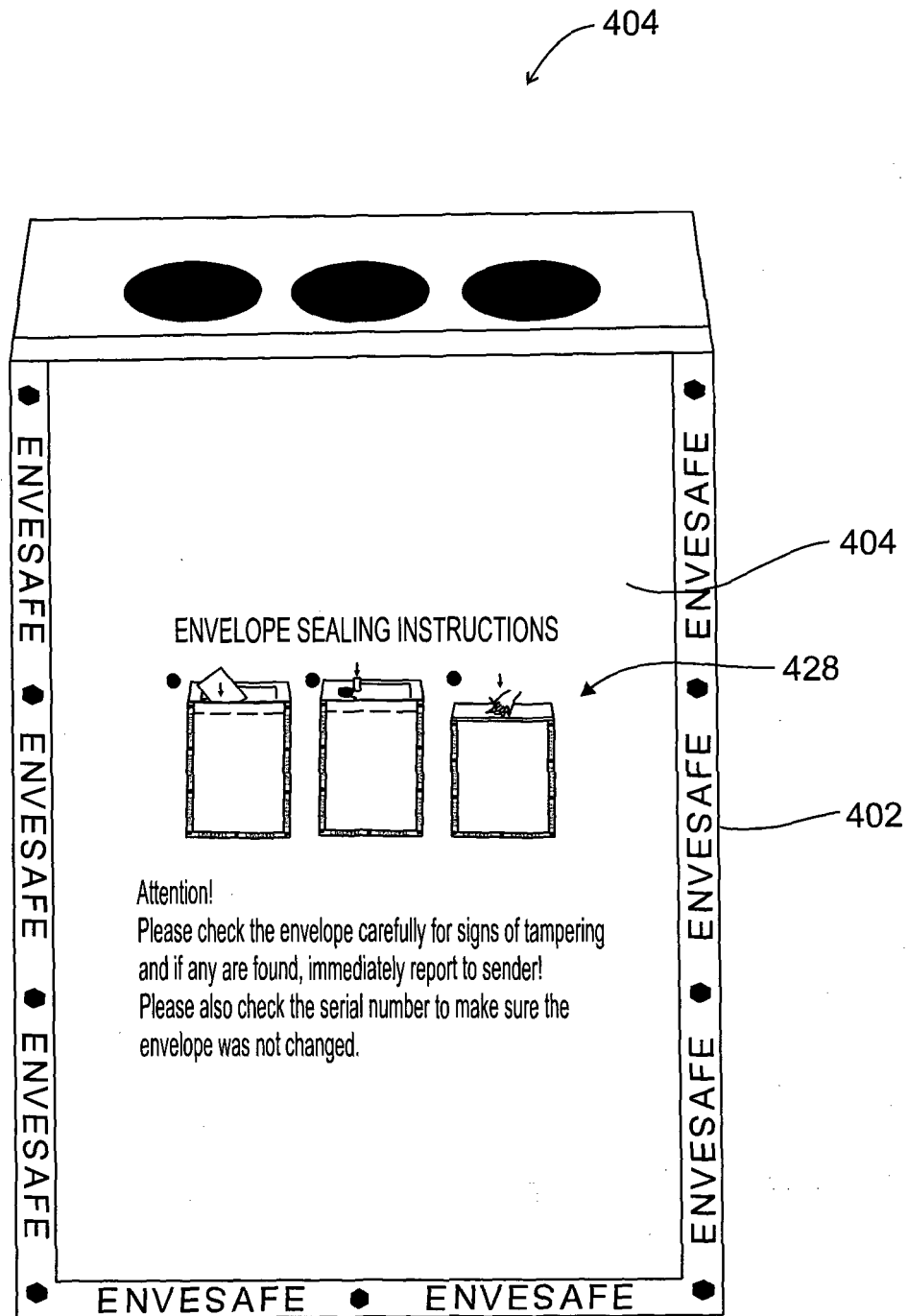


FIG. 4B

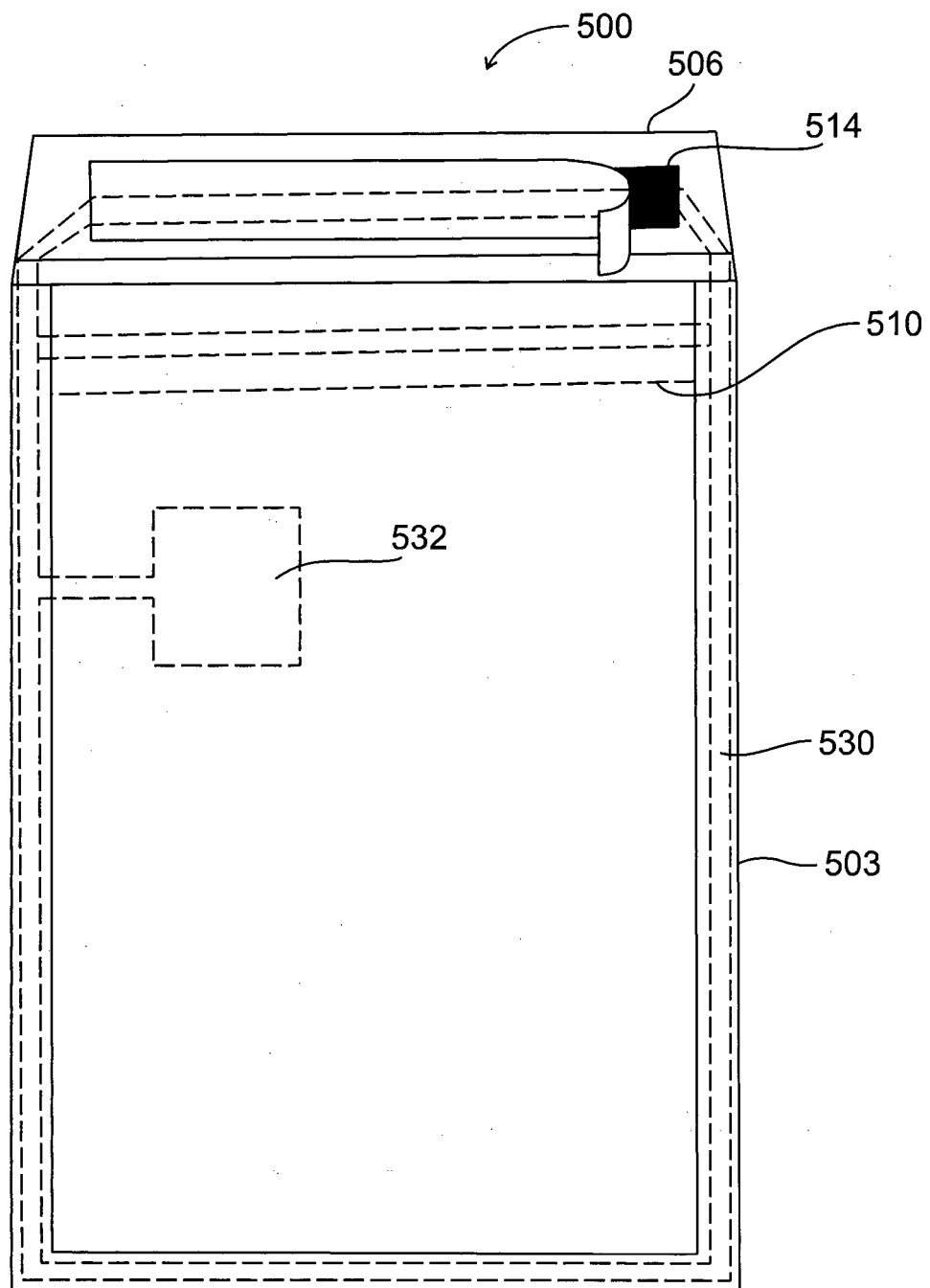


FIG. 5

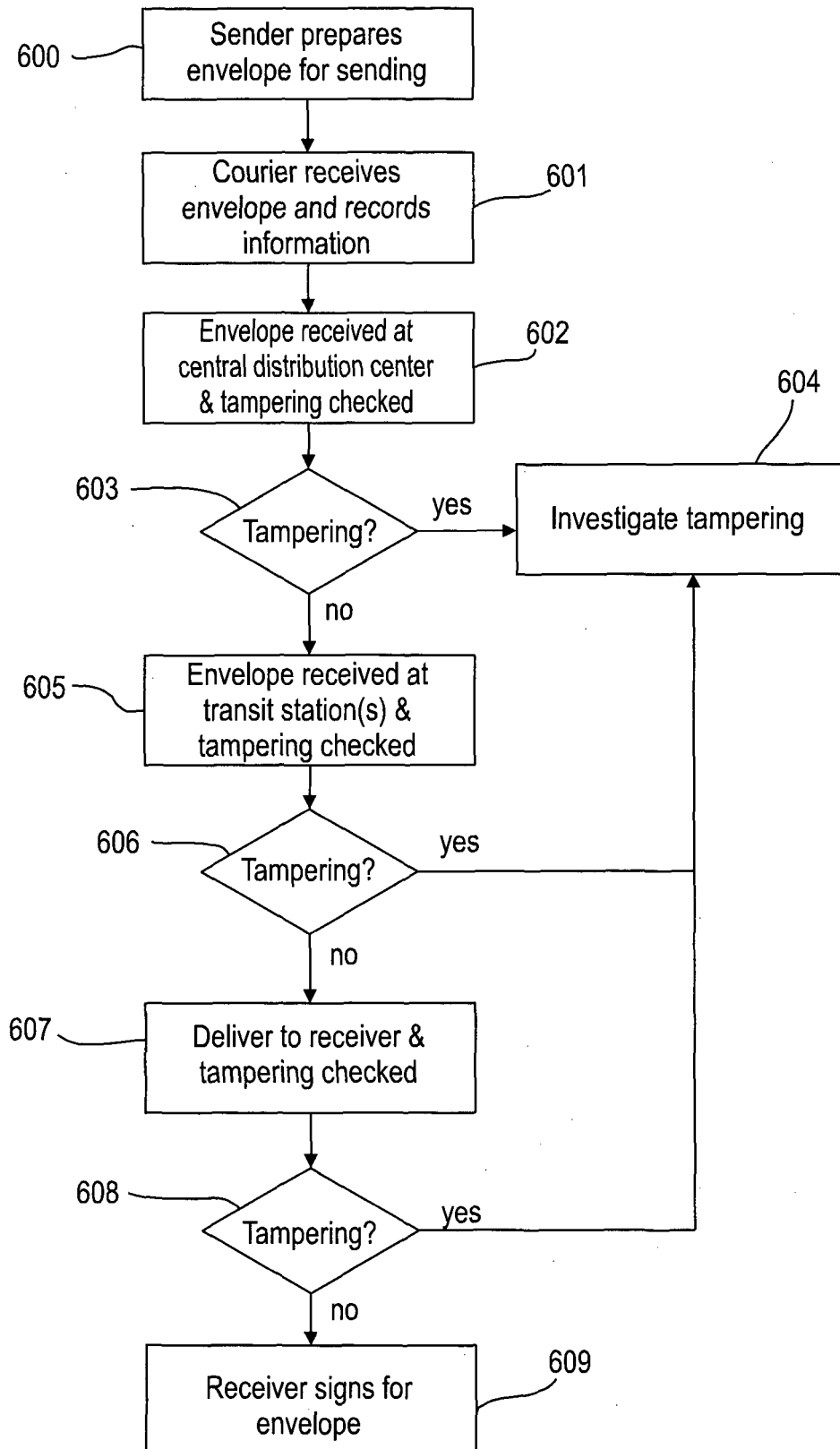


FIG. 6

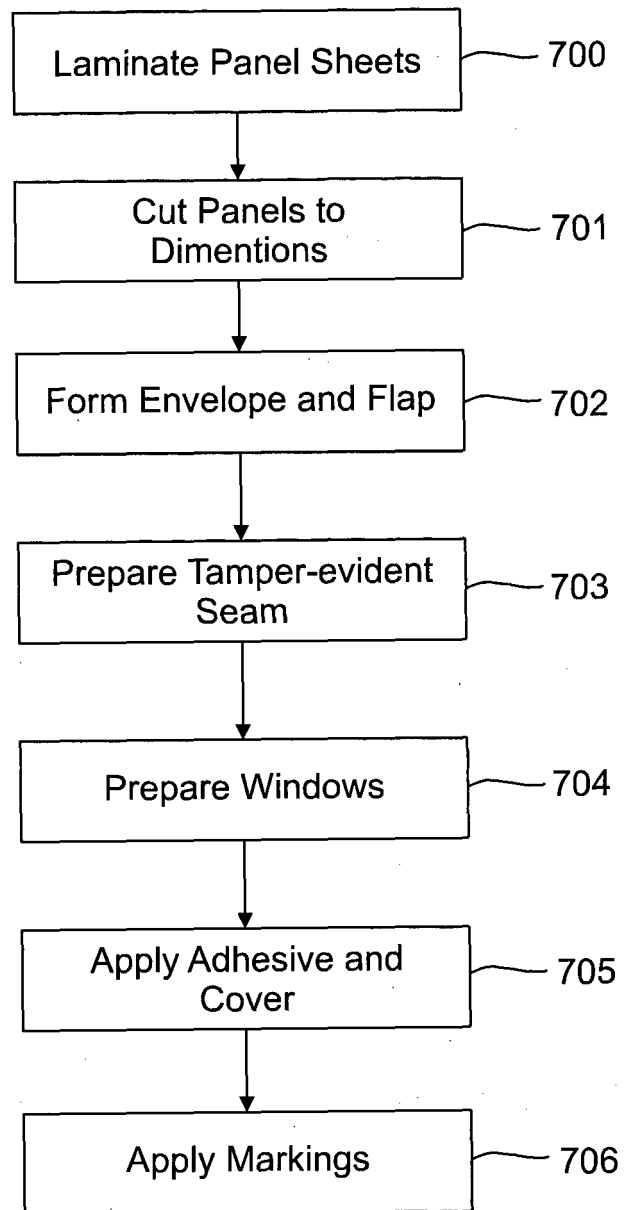


FIG. 7

REFERENCES CITED IN THE DESCRIPTION

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