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(54) **Tamper evident security bag**

Manipulationssichere Sicherheitstasche

Sac de sécurité anti-sabotage

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(56) References cited:
EP-A- 0 460 459
EP-A1- 1 442 897
GB-A- 2 403 207
US-A- 4 834 552
US-A- 5 319 475
US-A- 5 918 983
US-A- 6 096 387

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Description

[0001] This invention relates to a security bag to a tamper evident type and a method of forming a security bag.

[0002] The state of the art currently includes such closures as described in our earlier British Patent No. 2327933 and European Patent No. 0628007. EP 0628007 discloses a security bag formed of sheet material comprising a tamper evident closure portion and a part which is superimposed on a first portion of the sheet material and joined to it by a heat seal in the region of the superimposition, a part of the closure portion being adhesive to effect closure of the bag. In general, tamper evident closures comprise a seal for two surfaces which can be contacted together to close the seal; generally at least one surface is coated in adhesive so as to close the seal. Common features which provide an indication of any illicit attempt to open and re-close the container including the seal include: at least one surface being made from a material which will deform when an attempt is made to pull them apart; at least part of at least one surface being coated with thermochromic ink which may change colour when heated or when cooled (heating or cooling can be used to lower the tack of the adhesive such that the seal can be opened and re-closed without deforming the container); at least part of at least one of the surfaces being treated with a solvent evident ink (this will indicate when an attempt has been made prior to closure to cover one surface in a substance to lower the adhesion caused by the adhesive); at least one portion of a surface being treated with a discontinuous pattern of adhesive and ink (this will indicate when the bag has been successfully opened and re-closed as the pattern will not match). Of course various combinations of these features can be provided to indicate different methods of tampering, and the features can be on either of the surfaces. It will be evident to the skilled man that a surface which has none of these features but cooperates with a surface having a tamper evident feature will nonetheless still be a tamper evident closure portion.

[0003] Frequently such tamper evident closures are formed as a tape and heat-sealed or otherwise attached to a portion of a bag. However, where this is the case, there is a problem that the bag can be interfered with in the following way, without obvious evidence of tampering: the tape can be cut close to the heat seal, so as to gain access to the inside of the bag without disturbing the tamper evident portion of the tape and then a strip of tape from another unused bag can be stuck over the cut tape effectively hiding the cut.

[0004] Accordingly the present invention provides a security bag according to claim 1.

[0005] By making the pattern pseudo-random it will be even more unlikely that the tampering could be concealed as it will be unlikely that the perpetrator will be able to locate a closure portion having the same pattern as the adjacent portion of the tampered container. The term pseudo-random pattern is used to describe a series of features which appears to be random but is in fact generated according to some pre-arranged sequence; which repeats over a long distance relative to the width of the bag.

[0006] In general, when security tape is heat sealed to a bag, the adhesive portion of the closure portion does not directly abut the heat seal, so access to the inside of the bag can be gained by cutting in the region between the heat seal and the adhesive portion. Since the entirety of the security tape cannot be removed because part of it is attached to the bag in the region of the heat seal, so long as the pattern extends over the heat seal and the adhesive portion the perpetrator cannot conceal the tampering by cutting off the security tape from one bag adjacent to the heat seal and sticking it over the cut in the tampered bag as the tampering would be exposed by the lack of registration of the pattern in the region of the heat seal.

[0007] It has been found that thieves have overcome current tamper indicating bags by coating the adhesive layer of the bags with a less powerful adhesive, such as PRITT (TM) stick prior to closure thus affording a weak bond which can be overcome at a later stage (perhaps when under less surveillance, or having been searched) at which point the contents of the bag can be interfered with, prior to final closure.

[0008] Accordingly a preferred embodiment of the invention provides a security bag wherein said tamper evident closure portion includes a discontinuous adhesive pattern on one surface.

[0009] In another aspect of the invention there is provided a tamper evident tape according to claim 6 portion adapted to be attached to a security bag and a closure portion including a pseudo-random pattern spanning both portions.

[0010] In a further aspect of the invention there is provided a method of forming a security bag according to claim 7.

[0011] Some embodiments will now be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows a schematic side view of a security bag in accordance with the invention.

Figure 2 shows a diagrammatic plan view of a security bag in accordance with the invention as shown in Figure 1.

Figure 3 shows a diagrammatic plan view of a piece of tape having an alternative pattern according to the invention.

Figure 4 shows a diagrammatic plan view of a piece of tape having another alternative pattern not falling within the scope of the invention.

Figure 5 shows a schematic side view of an alternative embodiment of the invention.

Figure 6 shows a schematic plan view of part of a security bag shown in Figure 5.

Figure 7 shows a schematic view of the underneath of the part of a security bag shown in figure 6.

Figure 8 shows a schematic plan view of part of a security bag shown in Figure 5.

[0012] Referring first to Figure 1, a security bag is illustrated, comprising a strip of translucent or transparent tamper evident tape 10 attached to a preferably opaque bag 30 by a heat seal in zone 40 so as to form a tamper evident seal when the first (interior) surface 11 of the closure portion 50 of-the tape 10 contacts the first (interior) surface 21 of the closure portion 20 of the bag. In a preferred embodiment a pseudo-random pattern is printed on a first (interior) surface 11 of the transparent or translucent tamper evident tape 10 so as to be visible externally, as shown in Figure 2. The pattern may alternatively be printed on the second (exterior) surface 12 of the tamper evident tape 10 but it is preferable to print it on the internal surface since it will be appreciated that it will not be possible for a thief to remove the pattern with a solvent if it is printed on the interior surface.

[0013] Figure 2 shows an example of a pseudo-random pattern made up of a series of lines forming triangles 60 which span both the portion of the strip of tamper evident tape which forms the closure portion 50 and the portion of the tamper evident tape which is heat sealed to the bag so as to form a portion 70 of the bag adjacent to the closure portion 50.

[0014] Figure 3 shows an alternative embodiment of the invention, in which a piece of tamper evident tape 100 has a closure portion 500 and a portion adapted to be attached to a security bag by means of a heat seal in zone 700. In this case, it can be seen that the pattern is formed by a series of differently spaced words, in this case spelling "Misaligned?"

[0015] Figure 4 shows an alternative embodiment not forming part of the invention in which case the pattern 602 is regular, although in this case it will be simple for a person who has tampered with the bag to obtain a piece of tamper evident tape bearing the same pattern and stick this over the cut in the original tape, it will be difficult to line up the lines in the pattern correctly, and misalignment will indicate tampering. An embodiment such as this, in which the pattern is regular has the advantage that it is easier to produce.

[0016] Referring to Figures 5-8 which show a most preferred embodiment of a security bag according to the invention it can be seen from Figure 5 that the bag maintains all the same features as that of Figure 1 but further includes a foil release liner 80, foil release liners are well known in the art however, the foil liner of a most preferred embodiment has a folded part 90 extending away from the interior surface 11 of the closure portion 50.

[0017] It can be seen from Figure 6 that the top of the security bag includes a pseudo-random pattern, made up of a series of triangles 601 having gaps of a different size between them. This pattern can be printed or otherwise applied to the external surface, but in the preferred embodiment is printed on the internal surface of a transparent or translucent portion of the bag and therefore visible externally.

[0018] Figure 7 shows the tamper-evident features on the interior surface 11 of the tamper evident closure portion 50 of the tape 10 of a most preferred embodiment of the invention. As mentioned above, in this most preferable embodiment of the invention, the base material forming the tape 10 is transparent. As seen in Figure 6, the pseudo-random pattern of triangles 601 is printed on the internal surface of the tape. The strips marked 1 in the drawing have a pattern (preferably displaying a message such as "STOP") of silicone acrylate or other methods known to those skilled in the art to achieve a discontinuous release layer on the base material, and a layer of opaque ink coating this layer or a similar arrangement if this type, such as those described in European Patent No. 0493465 the effect of this arrangement is that if the seal is peeled apart, the ink will be left on the base material in the intervening spaces left by the release pattern, whereas the ink will come away from the interior surface 11 where the silicone acrylate is printed as it will adhere more strongly to an overlying adhesive The strips marked 2 in the drawing are printed with a thermochromic ink such as the type described in British Patent No. 2270857, preferably the ink changes from being transparent, translucent or light coloured to a bright colour, and more preferably the ink is arranged in a pattern, for example a series of words spelling "tampered" or "stop" thus on application of heat (or on cooling) the change in colour will be clearly visible through the transparent/translucent base material. The closure portion 50 has a final top coat of adhesive covering all the features except in the strips marked 3 thus forming a discontinuous pattern. The purpose of the strips marked 3 will become clear once the surface 21 has been described.

[0019] Figure 8 shows the tamper evident features on the interior surface 21 of the tamper evident closure portion 20 of the bag 30. As can be seen, there are two sections 4 and 5, both of which are coated in solvent detecting ink, which may change colour, or dissolve on contact with a solvent. In a most preferred embodiment, section 4 (nearest the top of the bag, facing the non-adhesive strips marked 3 on interior surface 11 of tape 10) is coated in a solid area of solvent detecting ink and section 5 is a layer of solvent detecting ink in a pattern, most preferably spelling a word, such as "void" the function of the patterned ink being to smudge on contact with a solvent whereas the combination of a solid area of solvent active ink opposite the strips marked 3 serves a different function. As mentioned above, it has been found that a weak (usually water soluble glue) is used to coat the adhesive portion of the bag in order to weaken the bond when the bag is closed and allow for later tampering, therefore the non-adhesive strips 3 are intended to be accidentally contacted with adhesive during tampering causing the ink to be in a more intimate relationship with the strips marked 3 thus changing the appearance

of the seal in that portion as the colour of the ink will be more visible through the transparent/translucent base material of the bag.

Claims

1. A security bag formed of sheet material comprising a transparent or translucent tape 10, including a tamper evident closure portion (50) and a part which is superimposed on a first portion of the sheet material and joined to it by a heat seal (40) in the region of the superimposition (70), a part of the closure portion being adhesive to effect closure of the bag; wherein an externally visible pattern (60) is applied to at least part of a surface of the closure portion (50) , the pattern spanning at least part of the heat seal (40) so that any attempt to superimpose the tamper evident closure portion from a part of a security tape from another bag to conceal damage caused by cutting in the region between the heat seal and the adhesive portion is exposed by the lack of registration of the patterns (60) in the region of the heat seal; wherein the pattern is formed of a series of features which appears to be random, but is in fact generated according to some pre-arranged sequence, the pattern repeating over a long distance relative to the width of the bag.

2. A security bag according to claim 1 wherein said tamper evident closure portion (50) includes a discontinuous adhesive pattern on one surface.

3. A security bag according to claim 2 wherein said adhesive surface of the tamper evident closure portion opposes a surface (21) on a second portion of sheet material which when contacted together seals the security bag and said surface (21) on the second portion includes an ink pattern (4,5) opposing at least part of the areas of the adhesive surface not covered by the adhesive pattern (3).

4. A security bag according to claim 3 wherein said ink is water-soluble.

5. A security bag according to any one of the preceding claims further including a foil release liner (80) having a tab (90) projecting from it.

6. A transparent or translucent tamper evident tape (10) having a portion (40) adapted to be heat sealed to a security bag (3) and a closure portion (50), including a part which is adhesive; the tape including a pattern spanning at least part of the portion adapted to be heat sealed and at least part of the adhesive portion; wherein the pattern is
formed of a series of features which appears to be random, but is in fact generated according to some pre-arranged sequence (60), the pattern repeating over a long distance relative to the width of the bag.

7. A method of forming a security bag according to any one of claims 1-5 comprising forming a transparent or translucent tape (10) having tamper evident features including adhesive on one surface (11) and a pattern visible on the opposite surface (12), cutting the tape into strips and heat sealing a strip to a security bag (30) such that a part of the strip forms a closure portion and the pattern spans at least part of the heat seal and at least part of the adhesive portion; wherein the pattern comprises a series of features which appears to be random but is in fact generated according to some prearranged sequence, the pattern repeating over a long distance relative to the width of the bag.

Patentansprüche

1. Sicherheitstasche, die aus einem bahnförmigen Material gebildet ist, das ein durchsichtiges oder durchscheinendes Band (10) aufweist, mit einem manipulationsindikativen Verschlussbereich (50) und einem Teil, der über einen ersten Bereich des bahnförmigen Materials gelegt ist und damit durch eine Heißsiegelung (40) in der Region der Übereinanderlage (70) verbunden ist, wobei ein Teil des Verschlussbereichs klebend ist, um ein Verschließen der Tasche zu bewirken, wobei ein von außen sichtbares Muster (60) wenigstens auf einem Teil einer Oberfläche des Verschlussbereiches (50) aufgebracht ist, wobei das Muster wenigstens über einen Teil der Heißsiegelung (40) reicht, so dass jeder Versuch, den manipulationsindikativen Verschlussbereich mit einem Teil eines Sicherheitsbands von einer anderen Tasche zu überdecken, um Beschädigungen zu verbergen, die durch Schneiden in der Region zwischen der Heißsiegelung und dem Klebereich verursacht sind, durch mangelnde Deckung der Muster (60) in der Region der Heißsiegelung bloßgelegt wird, wobei das Muster aus einer Folge von Merkmalen gebildet ist, die zufällig erscheint, aber tatsächlich gemäß einer vorher festgelegten Sequenz erzeugt ist, wobei sich das Muster über eine in Relation zur Breite der Tasche große Distanz wiederholt.

2. Sicherheitstasche nach Anspruch 1, wobei der manipulationsindikative Verschlussbereich (50) ein nicht durchgängiges Klebemuster auf einer Oberfläche umfasst.

3. Sicherheitstasche nach Anspruch 2, wobei die Klebeoberfläche des manipulationsindikativen Verschlussbereichs einer Oberfläche (21) auf einem zweiten Bereich des bahnförmigen Materials gegen-

überliegt, die, wenn sie in Kontakt gebracht werden, die Sicherheitstasche versiegeln, und wobei die Oberfläche (21) in dem zweiten Bereich ein Farbmuster (4, 5) umfasst, das wenigstens einem Teil der Klebeoberfläche, die nicht von dem Klebemuster (3) bedeckt ist, gegenüberliegt.

4. Sicherheitstasche nach Anspruch 3, wobei die Farbe wasserlöslich ist.

5. Sicherheitstasche nach einem der vorhergehenden Ansprüche, die weiter eine Folientrennschicht (80) mit einer davon abstehenden Lasche (90) aufweist.

6. Durchsichtiges oder durchscheinendes, manipulationsindikatives Band (10) mit einem Bereich (40), der dazu angepasst ist, um an eine Sicherheitstasche (3) heißgesiegelt zu werden, und mit einem Verschlussbereich (50), der einen klebenden Teil aufweist, wobei das Band ein Muster aufweist, das wenigstens über einen Teil des Bereichs, der dazu angepasst ist, um heißgesiegelt zu werden, und wenigstens einen Teil des klebenden Bereichs reicht, wobei das Muster aus einer Folge von Merkmalen gebildet ist, die zufällig erscheint, aber tatsächlich gemäß einer vorab festgelegten Sequenz (60) erzeugt ist, wobei sich das Muster sich über eine relativ zu der Breite der Tasche große Distanz wiederholt.

7. Verfahren zum Herstellen einer Sicherheitstasche nach einem der Ansprüche 1 bis 5, bei dem ein durchsichtiges oder durchscheinendes Band (10) gebildet wird, das manipulationsindikative Merkmale einschließlich Klebstoff auf einer Oberfläche (11) und eines auf der gegenüberliegenden Oberfläche (12) sichtbaren Musters aufweist, das Band in Streifen geschnitten und ein Streifen an eine Sicherheitstasche (30) heißgesiegelt wird, so dass ein Teil des Streifens einen Verschlussbereich bildet und das Muster wenigstens einen Teil der Heißsiegelung und wenigstens einen Teil des Klebebereichs überdeckt, wobei das Muster eine Folge von Merkmalen aufweist, die zufällig erscheint, aber tatsächlich gemäß einer vorab festgelegten Sequenz erzeugt ist, wobei sich das Muster über eine relativ zu der Breite der Tasche große Distanz wiederholt.

Revendications

1. Sac de sécurité formé d'un matériau en feuilles comprenant une bande transparente ou translucide (10), comprenant une partie de fermeture inviolable (50) et une partie qui est superposée sur une première partie du matériau en feuilles et reliée à celle-ci par un joint à chaud (40) dans la zone de la superposition (70), une partie de la partie de fermeture étant adhésive pour réaliser une fermeture du sac ; dans lequel un motif visible de l'extérieur (60) est appliqué à au moins une partie d'une surface de la partie de fermeture (50), le motif s'étendant sur au moins une partie du joint à chaud (40) de sorte que toute tentative pour superposer la partie de fermeture inviolable à partir d'une partie d'une bande de sécurité provenant d'un autre sac afin de dissimuler les dommages provoqués par une découpe dans la zone entre le joint à chaud et la partie adhésive est exposée par le défaut d'alignement des motifs (60) dans la zone du joint à chaud ; dans lequel le motif est formé d'une série d'éléments qui semble être aléatoire mais est en fait générée conformément à une certaine séquence pré-agencée, le motif se répétant sur une longue distance par rapport à la largeur du sac.

2. Sac de sécurité selon la revendication 1, dans lequel ladite partie de fermeture inviolable (50) comprend un motif adhésif discontinu sur une surface.

3. Sac de sécurité selon la revendication 2, dans lequel ladite surface adhésive de la partie de fermeture inviolable est opposée à une surface (21) sur une deuxième partie du matériau en feuilles qui, lorsqu'elles se touchent mutuellement, scelle le sac de sécurité et ladite surface (21) sur la deuxième partie comprend un motif d'encre (4, 5) opposé au moins à une partie des zones de la surface adhésive non couvertes par le motif adhésif (3).

4. Sac de sécurité selon la revendication 3, dans lequel ladite encre est soluble dans l'eau.

5. Sac de sécurité selon l'une quelconque des revendications précédentes comprenant en outre un revêtement séparable en film (80) ayant une languette (90) dépassant de celui-ci.

6. Bande inviolable transparente ou translucide (10) ayant une partie (40) conçue pour être scellée à chaud sur un sac de sécurité (3) et une partie de fermeture (50), comprenant une partie qui est adhésive ; la bande comprenant un motif s'étendant sur au moins une partie de la partie conçue pour être thermoscellée et au moins une partie de la partie adhésive ; dans laquelle le motif est formé d'une série d'éléments qui semble être aléatoire, mais est en fait générée conformément à une certaine séquence pré-agencée (60), le motif se répétant sur une longue distance par rapport à la largeur du sac.

7. Procédé de formation d'un sac de sécurité selon l'une quelconque des revendications 1 à 5, comprenant la formation d'une bande transparente ou translucide (10) comportant des éléments inviolables comprenant un agent adhésif sur une surface (11) et un motif visible sur la surface opposée (12), la

découpe de la bande en bandelettes et le thermoscellage d'une bandelette sur un sac de sécurité (30) de telle sorte qu'une partie de la bandelette forme une partie de fermeture et le motif s'étend sur au moins une partie du joint à chaud et sur au moins une partie de la partie adhésive ; dans lequel le motif comprend une série d'éléments qui semble être aléatoire mais est en fait générée conformément à une certaine séquence pré-agencée, le motif se répétant sur une longue distance par rapport à la largeur du sac.

Figure 1

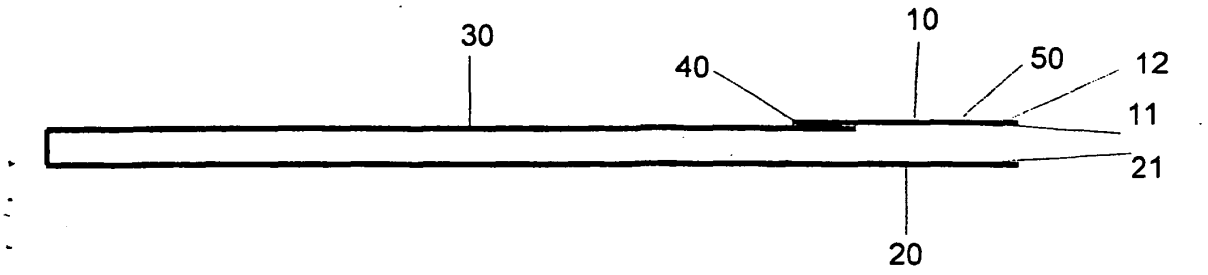


Figure 2

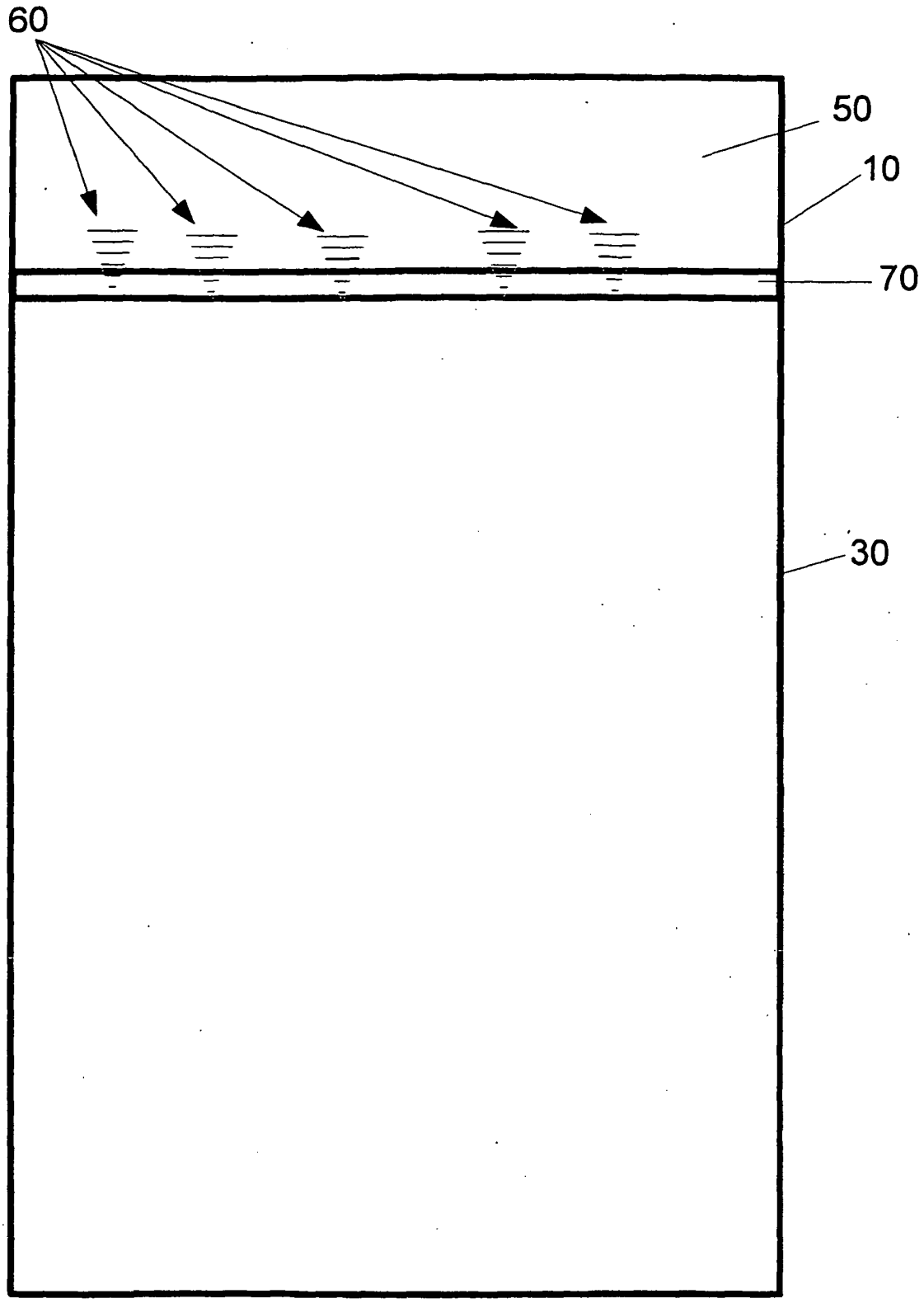


Figure 3

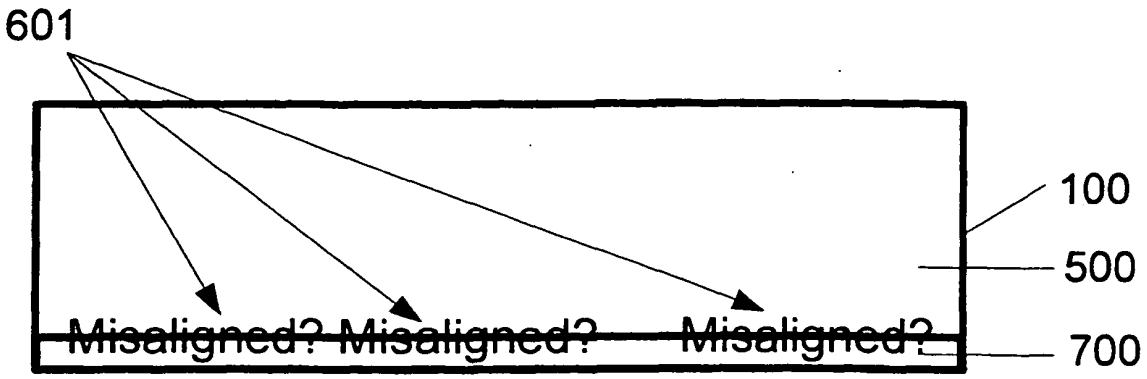


Figure 4

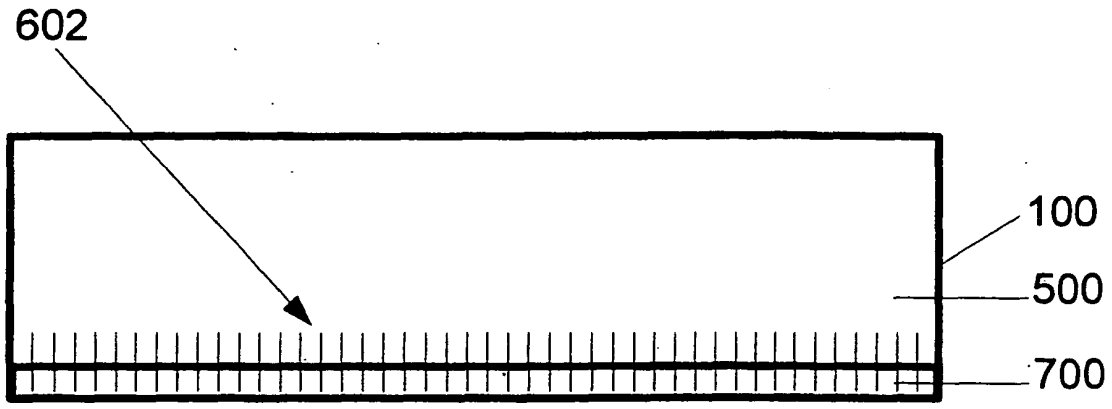


Figure 5

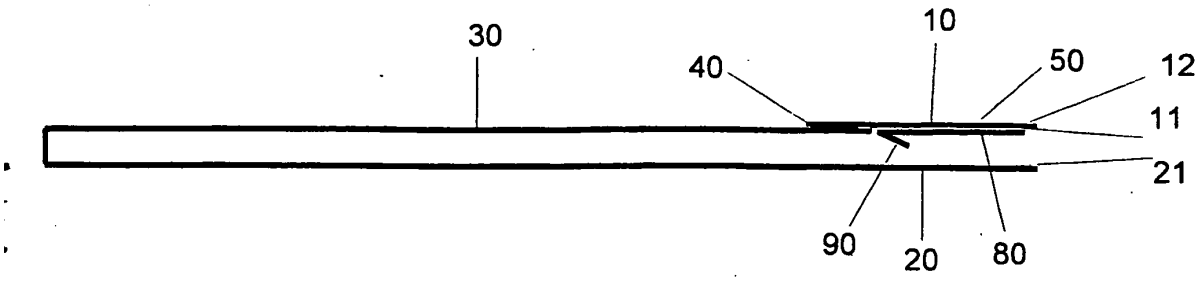


Figure 6

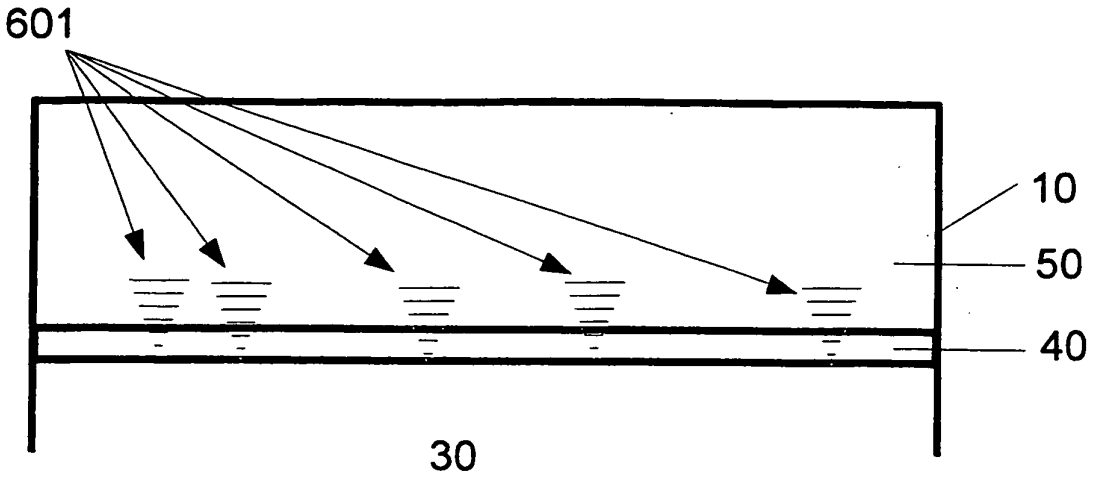


Figure 7

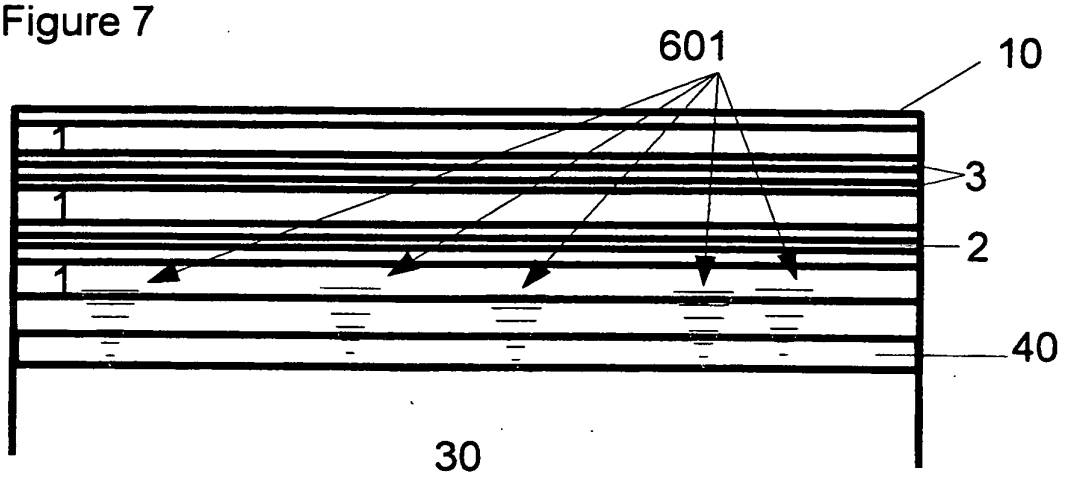
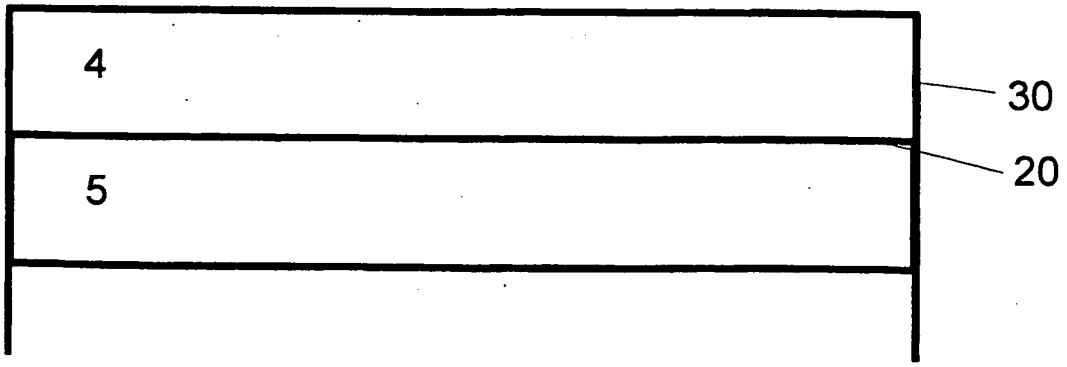


Figure 8



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- GB 2327933 A **[0002]**
- EP 0628007 A **[0002]**
- EP 0493465 A **[0018]**
- GB 2270857 A **[0018]**