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(54) DATA CARRIER WITH TACTILE PRINTED AREA FOR INK WRITING DATA

DATENTRÄGER MIT TAKTILEM BEDRUCKTEN BEREICH FÜR TINTE ZUM SCHREIBEN VON DATEN

SUPPORT DE DONNÉES AVEC ZONE IMPRIMÉE TACTILE POUR DONNÉES D'ÉCRITURE À L'ENCRE

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Description

TECHNICAL FIELD

[0001] The present invention relates generally to a data carrier comprising a printed area with embossing surface structure configured for preventing ink writing from smudging, spreading and manipulation.

EMBOSSSED ART

[0002] Historically, handwritten signatures have been used to identify a particular person and to bind that person to a particular document. A person's signature on a particular document supported the assertion that the person read and/ agreed to the document's content.

[0003] Many documents (eg administrative or official) include handwritten signature that is desirable to protect against forgery. For example, an identity card, passport, driving license, gray card, a check, pay slip, bank statement, a diploma, a birth, a deed or document medical (such as a medical prescription or a certificate), an electricity receipt, include handwritten signature which may be more or less easily falsified by a malicious person.

[0004] The means used by counterfeiters are numerous and include chemical solvent-type, means scraping and peeling, which aim to remove or delete the signature.

[0005] It is therefore desirable to produce data carrier with elevated protection against forgery and manipulation of handwritten signature using a method that is simple and cost effective.

[0006] Moreover another issue encountered when writing on paper of the document (eg administrative or official) is that the ink from the pen may not stick and dry easily and can cause unwanted smudging or spreading.

[0007] Document DE 10 2007 052 176 B3 discloses a data carrier.

SUMMARY OF THE INVENTION

[0008] The following summary of the invention is provided in order to provide a basic understanding of some aspects and features of the invention. This summary is not an extensive overview of the invention and as such it is not intended to particularly identify key or critical elements of the invention or to delineate the scope of the invention. Its sole purpose is to present some concepts of the invention in a simplified form as a prelude to the more detailed description that is presented below.

[0009] In view of the shortcomings of the prior art, it is an object of the present invention to increase the security and anti-counterfeiting capabilities of a written signature on a variety of data carrier, such as passports, licenses, identification card, official or administrative documents...

[0010] A printed area is provided in the data carrier for the written signature. The printed area comprises embossed lines extended at different angles to each other defining different shapes that are visible to a greater or

lesser as the data carrier is tilted, rotated or viewed from different angles relative to the light source. The embossed lines in some of the regions are finer than coarser and deeper and more widely spaced lines in the other regions. The coarser, deeper lines are of such a thickness and width as to be detectable by touch in addition to being visible by the naked eye.

[0011] These embossed lines allows to ease the smudging problem and address also the aforementioned forgery and manipulation drawbacks on ink written data on the printed area of the data carrier.

[0012] The embossing can comprise a regular matrix of embossed lines or dots or the like which together define a predefined pattern. The embossed pattern may include one or more embossing deeper than other embossing and/or it may include embossed lines or series of dots extending at different angles to each other.

[0013] In an embodiment, the embossed pattern includes a first set of substantially parallel lines and a second set of substantially parallel lines extending at an angle with respect to the first set of parallel lines so that as the ink of the written is stuck into the trough of the embossed pattern. This embossed pattern helps writing on it as the surface is rough and ink is kept hold on the trough without smudging.

[0014] In an embodiment, the embossed pattern may include embossed lines or dots of different depth, width or size so as to introduce different shapes into the pattern so as the written ink is hold durably into the trough. Preferably, at least some of the lines, dots or other embossing are of a sufficient depth and/or width to be capable of detection by the naked eye and by touch.

[0015] The embossed pattern, detectable with the sense of touch, forms a tactile security feature. Indeed, the embossed pattern creates visually easily detectable effect that increases the security significantly against missuses. This embossed pattern is a security feature that can be identified and recognized as authentic by the viewer without aids. Said embossed area is distinguishable from imitations and forgeries. These are e.g. tactile motifs of the embossed area are characterized by their typical tactility easily recognizable and cannot be imitated without special equipment's and skills.

[0016] The embossing are preferably formed by applying an embossing plate to the portion of the substrate material corresponding to the written area under heat and pressure. A convenient embossing temperature may fall substantially within the range from 70 to 85° C., preferably about 80° C., and a convenient embossing pressure may fall substantially within the range 30 to 40 MPa.

[0017] The configuration of this printed area has increased falsification security since they are not reproducible with common printing processes due to the characteristic of the embossed pattern tactically recognizable.

[0018] According to an embodiment of the present invention, the embossed area is produced with an Intaglio printing (Engraved Copperplate printing) process.

This printing process is characterized by engraving or etching depressions into a printing plates to produce a printed image onto the embossed area.

[0019] According to an embodiment of the present invention, the embossed pattern is printed with any motif desired. It is particularly preferred to use motifs that are elaborated to print, in particular structured printed images, such as guilloches, alphanumeric characters, etc.

[0020] To achieve those and other advantages, and in accordance with the purpose of the invention as embodied and broadly described, the invention proposes a data carrier according to claim 1.

[0021] In an embodiment, the ink written data is made with a handwritten or a machine written.

[0022] In an embodiment, the embossed pattern comprises a matrix of lines, dots or other embossing.

[0023] In an embodiment, the embossed pattern comprises embossed lines or series of dots extending at different angles to each other.

[0024] In an embodiment, the embossed pattern is formed by blind-embossed pattern.

[0025] In an embodiment, the embossed pattern comprises alphanumeric characters, serial numbers, codes, symbols, images or geometric patterns.

[0026] In an embodiment, the substrate material of the printed area is paper, plastic, plastic foil laminated or coated paper, or multilayer composite materials.

[0027] In an embodiment, the substrate is printed with parallel lines or shapes so that the structured embossed pattern provide an optical Moiré effect.

[0028] The present invention is also related to method according to claim 9.

[0029] The data carrier preferably comprises a printed area configured for ink written, said printed area being produced by imprinting via pressing, stamping, intaglio printing or with similar physical force, and having a tactile perceptibility structured embossed pattern produced by the imprinting configured to hold the ink of the ink written.

BRIEF DESCRIPTION OF THE DRAWINGS

[0030] The following detailed description will be better understood with the drawings, in which:

FIG. 1 schematically illustrates a plan view of a tactile printed area for ink written into a data carrier substrate, according to the invention.

FIG. 2 schematically illustrates a cross section through the printed area, according to the invention.

DETAILED DESCRIPTION OF THE EMBODIMENTS OF THE INVENTION

[0031] As shown in the drawings for purposes of illustration, the invention is embodied in a data carrier comprising a secure ink writing area.

[0032] It is to be understood that various other embodi-

ments and variations of the invention may be produced without departing from the scope of the claims. The following is provided to assist in understanding the practical implementation of particular embodiments of the invention.

[0033] The same elements have been designated with the same referenced numerals in the different drawings. For clarity, only those elements which are useful to the understanding of the present invention have been shown in the drawings and will be described.

[0034] Reference throughout the specification to "an embodiment" or "another embodiment" means that a particular feature, structure, or characteristic described in connection with an embodiment is included in at least one embodiment of the subject matter disclosed. Thus, the appearance of the phrases "in an embodiment" or "in another embodiment" in various places throughout the specification is not necessarily referring to the same embodiment. Further, the particular features, structures or characteristics may be combined in any suitable manner in one or more embodiments.

[0035] Hereafter, an embodiment of the present invention will be described in the context of data carrier comprising a tactile ink written printed area. Such a data carrier includes, but is not limited to, a driving license, a badge or pass, a passport, a discount card, a membership card, a diploma, a banking card, a credit card, a money card, and other security documents and papers of value that are to be provided with ink written data in such a way that they cannot be easily imitated by common means and are also protected from attempted manipulation.

[0036] FIG. 1 illustrates a schematic view of a data sheet 10 of a data carrier (not shown). In the example herein described, the data carrier is a passport and the data sheet 10 is a page of the passport.

[0037] The data sheet 10 may bear a name, date of birth, place of birth of the data carrier holder. The data sheet 10 comprise a printed area 11 configured to receive an ink written 12. The printed area 11 is configured so that any ink written 12 into it is prevented from smudging or spreading and protected from forgery. The ink written 12 can be handwritten or made through a machine writer such as known ink-jet printer. The ink written 12 can be anything as such the data carrier holder signature, a personalized data of the data carrier holder such name, date of birthday....

[0038] FIG. 2 shows the printed area 11 depicted in FIG. 1, in cross section along the line A-A. The printed area 11 is printed onto a substrate 14 of the data sheet 10.

[0039] The substrate material 14 of the printed area may be any substrate materials that can be used for ink written, such as paper, plastic, plastic foil laminated or coated paper, as well as multilayer composite materials. In a preferred embodiment, the substrate 14 is a paper, in particular based on cotton fibers.

[0040] The substrate material 14 of the printed area 11 can be the same or different of the substrate material of

the data sheet 10 bearing said printed area.

[0041] The printed area 11 comprises raised areas 15 and depressed areas 16 to provide an embossed pattern 13. The means for embossing the printed area substrate 14 preferably comprises at least one embossing plate which is applied to said printed area substrate 14 under heat and pressure to produce said embossed pattern. The embossing plate preferably includes a matrix of engraved lines, dots or other engraved formations which, when applied to said portion of the substrate 14, produces a corresponding matrix of embossed lines, dots or other formations forming the required pattern on the printed area 11.

[0042] Preferably, some of the lines, dots or engraved formations are deeper and/or wider than other lines, dots or engraved formations on the embossing plate, so as to produce embossed lines, dots or other formations of different depths and/or widths on said portion of the substrate. The lines, dots or other formations of different depths and/or widths may form different shapes within the embossed image.

[0043] In an embodiment, the embossed lines are between 5 to 100 wide and/or deep but not limited. During test, it is appeared that a height of the raise area 15 between 20 to 50 microns allows to hold the ink filled into the depressed area 16 in a way preventing from smudging, spreading and manipulation.

[0044] The strength of the security of the printed area 11 depends on the different depths and/or widths of the embossed pattern 13 and/or to the design of said embossed pattern.

[0045] In a preferred embodiment, the embossing plate includes engraved sets of lines extending at different angles and defining different shapes so that the embossed pattern 13 includes different shapes which become more or less apparent as the data sheet 10 is rotated or viewed from different angles.

[0046] In an embodiment, the embossing plates can form part of an intaglio printing press having printing means in the form of a printing plate cylinder and pressure-applying means in the form of an impression cylinder. The Intaglio printing is preferably done with Intaglio printing plates produced by engraving with a fast rotating, tapered graver, for example by a method described in WO 97/48555. The engraving technique of so-called "separating edges" according to WO 00/20216 and WO 00/20217 can be also used. The engravings can fundamentally also be produced by laser engraving or etching or any other suitable removal method.

[0047] In an embodiment, before the actual printing operation, ink of pasty consistency can be applied to the engraved printing plate representing the embossed patterns 13 and surplus printing ink is removed from the surface of the printing plate by means of a wiping blade or wiping cylinder, so that ink remains only in the depressions. Then the substrate 14 of the printing area 11, as a paper of the data sheet 10, is pressed against the printing plate and thus also into the ink-filled depressions of the

printing plate, and removed again, whereby ink is drawn out of the depressions of the printing plate, sticks to the substrate 14 surface and forms the embossed pattern 13 of the printed area 11.

[0048] In an embodiment, transparent inks can be used wherein the thickness of inking determines the shade. A light shade is thus obtained when a white data carrier is printed with small ink layer thicknesses, and darker shades when it is printed with thick ink layers. The ink layer thickness is in turn dependent to some degree on the engraving depth.

[0049] In another embodiment, the structured embossed pattern 13 can be blind-embossed area. To produce said blind-embossed area, the engravings of the printing plate are not, or at least partly not, inked, i.e. not filled with printing ink, before the printing operation. The non-inked area of the printing plate acts only as an embossing plate with which the stated blind embossings can be produced on the substrate 14 during the intaglio printing operation. The embossed elements have similar proportions and tactile properties to the printed areas, with the exception of the visual impression produced by the printing ink. These blind embossings can also be perceived tactilely.

[0050] The embossing plates contain projecting portions and recesses or grooves forming an arrangement or matrix of engraved lines, dots or other engravings, preferably of different depths or sizes so that when the substrate passes through the nip between the plate cylinder and the impression cylinder, as known by the skilled person, the substrate 14 of the printed area 11 is embossed with the matrix of lines, dots or other engravings to form the raise area 15 and the depression area 16.

[0051] The embossed lines, dots or other engravings may be arranged to form a pattern of any desired shape which is visible for a naked eye and the direction, width and/or separation of the lines, the size of the dots or other engravings and the depth of the lines, dots or other engravings may vary at different locations of the engraving so as to produce different shapes within a pattern. This pattern produces with different shapes allows providing depressions area 16 with different depth and/or width able to stuck the ink of the ink written filled into the trough preventing by this way the smudging, spreading and manipulation of said written.

[0052] The partial deformation of the paper surface of the substrate 14 of the printed area 11 resulting from the paper being pressed into the engraving of the printing plate, is easily palpable manually and thus also readily recognizable as an authenticity feature by its tactility. The tactility cannot be imitated with a copy machine, so that the printed area 11 offers protection against forgeries.

[0053] According to an embodiment of the present invention, the printed area 11 is at least large enough for the ink written 12 and to be easily visible and tactilely checkable. In an embodiment, the minimum area of such a printed area 13 can be about 1 to 5 cm².

[0054] The printed area 11 printed onto the substrate

14 comprises structured embossed pattern 13.

[0055] According to the embodiment illustrated at FIG. 2, in the aim to strengthen the security then the raise area 15 and the depression area 16 of the embossed pattern 13 is not equally pronounced over the total printed area 11. Particularly, the raise area 15 thus the surface relief can be greater at least in certain areas in the printed area 11. The tactility of the printed area 11 from the raise area 15 can be increased by more inking and stronger embossing. This is normally obtained by deeper engravings in the printing plate used.

[0056] The different raise area 15 of the embossed pattern 13 of the printed area 11 can optionally be visualized depending on the type of printing ink used. When transparent printing inks are used, the color effect is dependent on the printed ink layer thickness, i.e. the thicker the ink is printed, the darker the printed motifs appears, and vice versa. When opaque printing inks are used, the brightness impression is independent of ink layer thickness. With a skillful choice of printing inks and ink layer thicknesses the appearance of the printed motifs can make the tactility of the motif recognizable to the naked eye or not.

[0057] The structured embossed pattern 13 tactilely perceptible offers effective protection against imitation by color photocopying or scanning of the data carriers. Additionally the ink written data on the printed area 11 are reliably protected from attempts at tampering. The present invention therefore combines in a unique way the advantages of tactile embossed pattern for ink written into a data carrier.

[0058] The structured embossed pattern 13 can be alphanumeric characters, for example serial numbers of the data carrier 10 or any codes, such as for example one-dimensional or two-dimensional bar codes or blind codes, any symbols or images. Any alphanumeric characters, such as date, time, batch designation, or writings, are possible, too. Of course, any geometric patterns can also be produced, such as for example a knobbed structure. The structured embossed pattern 13 can be a guilloche pattern easily detectable tactilely.

[0059] Advantageously, the ink written data onto the printed area 11 is substantially protected against forgery, manipulation, and smudge while having an improved durability. The printed area 11 has an effective copy protection since distinctive visual impression of the structured embossed pattern 13 cannot be rendered by common forgery methods.

[0060] The structured embossed pattern 13, in addition to increased security of the ink written, can also provide optical effects, contributing to the overall security of the printed area 11. Indeed, structured embossed pattern 13 can provide the optical Moiré effect, which cannot be copied on copying machines. The Moiré effect will be visible on the substrate 14 printed with parallel lines or shapes as illustrated in FIG. 1.

[0061] Although the present invention is described as implemented in the above described embodiment, it is

not to be construed to be limited as such. Other materials, for example, papers or plastic materials of different surface nature, such as photographic papers, passes, documents, value-bearing papers, checks, any support having wherein a secure ink written is needed can be used.

Claims

1. A data carrier comprising a data sheet, said data sheet comprising a substrate material having a part bearing at least one printed area, said printed area being configured for ink written data, wherein
 - said printed area comprises raised areas and depressed areas forming an embossed pattern, the embossed pattern is formed by blind-embossed pattern,
 - the raised areas and depressed areas comprise depths, widths and/or a design configured to keep the ink of the ink written filled into the depressed area so that to prevent smudging, spreading and manipulation, **characterised in that**
 - wherein the embossed pattern comprises at least one raised area that is deeper or wider than another raised area.
2. Data carrier according to the previous claim, wherein the ink written data is made with a handwritten or a machine written.
3. Data carrier according to any of the previous claims, wherein the embossed pattern comprises a matrix of lines, dots or other embossing.
4. Data carrier according to any of the previous claims, wherein the embossed pattern comprises embossed lines or series of dots extending at different angles to each other.
5. Data carrier according to any of the previous claims, wherein the embossed pattern comprises alphanumeric characters, serial numbers, codes, symbols, images or geometric patterns.
6. Data carrier according to any of the previous claims, wherein the substrate material of the printed area is paper, plastic, plastic foil laminated or coated paper, or multilayer composite materials.
7. Data carrier according to the previous claim, wherein the substrate is printed with parallel lines or shapes so that the structured embossed pattern provide an optical Moiré effect.
8. Data carrier according to any of the previous claims, wherein the data sheet is an identity card, a page of a

passport, a credit card or the like.

9. Method for manufacturing a data carrier according to any of the previous claims, the method comprising the steps of

providing a printed area in a data carrier suitable for placing a written signature, wherein the printed area comprises embossed lines extended at different angles to each other defining different shapes that are visible to a greater or lesser extent as the data carrier is tilted, rotated or viewed from different angles relative to the light source,

wherein the embossed lines in some of the regions are finer than coarser and deeper and more widely spaced lines in the other regions; wherein the coarser and deeper lines are of such a thickness and width as to be detectable by touch in addition to being visible by the naked eye;

wherein the embossed area is produced by an Engraved Copperplate printing process, wherein engraving or etching depressions are produced into printing plates to produce a printed image onto the embossed area.

10. Method according to claim 9, wherein the engravings of the printing plate are not, or at least partly not, filled with printing ink before the printing operation.

Patentansprüche

1. Datenträger, der ein Datenblatt umfasst, wobei das Datenblatt ein Substratmaterial umfasst, das einen Teil aufweist, der mindestens einen bedruckten Bereich trägt, wobei der bedruckte Bereich für mit Tinte geschriebene Daten konfiguriert ist, wobei der bedruckte Bereich erhabene Bereiche und vertiefte Bereiche umfasst, die ein Prägemuster bilden,

das Prägemuster durch ein Blindprägemuster gebildet wird,

die erhabenen Bereiche und vertieften Bereiche Tiefen, Breiten und/oder ein Design umfassen, die so konfiguriert sind, dass die Tinte der geschriebenen Tinte in den vertieften Bereich gefüllt bleibt, um ein Verschmieren, Ausbreiten und Manipulieren zu verhindern, **dadurch gekennzeichnet, dass** wobei das Prägemuster mindestens einen erhabenen Bereich umfasst, der tiefer oder breiter als ein anderer erhabener Bereich ist.

2. Datenträger nach dem vorhergehenden Anspruch, wobei die mit Tinte geschriebenen Daten handschriftlich oder maschinell geschrieben sind.

3. Datenträger nach einem der vorhergehenden Ansprüche, wobei das Prägemuster eine Matrix aus Linien, Punkten oder anderen Prägungen umfasst.

4. Datenträger nach einem der vorhergehenden Ansprüche, wobei das Prägemuster aus geprägten Linien oder Punktreihen besteht, die in unterschiedlichen Winkeln zueinander erstrecken.

5. Datenträger nach einem der vorhergehenden Ansprüche, wobei das Prägemuster alphanumerische Zeichen, Seriennummern, Codes, Symbole, Bilder oder geometrische Muster umfasst.

6. Datenträger nach einem der vorhergehenden Ansprüche, wobei das Substratmaterial des bedruckten Bereichs Papier, Kunststoff, mit Kunststoffolie laminiertes oder beschichtetes Papier oder mehrschichtige Verbundmaterialien sind.

7. Datenträger nach dem vorhergehenden Anspruch, wobei das Substrat mit parallelen Linien oder Formen bedruckt ist, so dass das strukturierte Prägemuster einen optischen Moiré-Effekt erzeugt.

8. Datenträger nach einem der vorhergehenden Ansprüche, wobei das Datenblatt ein Personalausweis, eine Seite eines Reisepasses, eine Kreditkarte oder dergleichen ist.

9. Verfahren zur Herstellung eines Datenträgers nach einem der vorhergehenden Ansprüche, wobei das Verfahren die Schritte umfasst:

Bereitstellen eines bedruckten Bereichs in einem Datenträger, der zum Platzieren einer handschriftlichen Unterschrift geeignet ist, wobei der bedruckte Bereich geprägte Linien umfasst, die sich in verschiedenen Winkeln zueinander erstrecken und unterschiedliche Formen definieren, die in einem größeren oder geringeren Ausmaß sichtbar sind, wenn der Datenträger geneigt, gedreht oder aus verschiedenen Winkeln relativ zu der Lichtquelle betrachtet wird,

wobei die geprägten Linien in einigen der Bereiche feiner sind als gröbere und tiefere und weiter beabstandete Linien in den anderen Bereichen;

wobei die größeren und tieferen Linien eine solche Dicke und Breite aufweisen, dass sie nicht nur mit bloßem Auge sichtbar, sondern auch durch Berührung erfassbar sind;

wobei der geprägte Bereich durch ein Gravur-Kupferdruckverfahren hergestellt wird, bei dem Gravur- oder Ätzvertiefungen in Druckplatten erzeugt werden, um ein Druckbild auf dem geprägten Bereich zu erzeugen.

10. Verfahren nach Anspruch 9, wobei die Gravuren der Druckplatte vor dem Druckvorgang nicht oder mindestens teilweise nicht mit Druckfarbe gefüllt sind.

Revendications

1. Support de données comprenant une feuille de données, ladite feuille de données comprenant un matériau de substrat ayant une partie portant au moins une zone imprimée, ladite zone imprimée étant configurée pour des données écrites à l'encre, dans lequel ladite zone imprimée comprend des zones surélevées et des zones déprimées formant un motif en relief,

le motif gaufré est formé par un motif gaufré à l'aveugle,

les zones en relief et les zones en creux comprennent des profondeurs, des largeurs et/ou un dessin configurés pour maintenir l'encre de l'écriture remplie dans la zone en creux afin d'éviter les taches, l'étalement et la manipulation, **caractérisé en ce que** dans lequel le motif en relief comprend au moins une zone en relief qui est plus profonde ou plus large qu'une autre zone en relief.
2. Support de données selon la revendication précédente, dans lequel les données écrites à l'encre sont écrites à la main ou à la machine.
3. Support selon l'une quelconque des revendications précédentes, dans lequel le motif gaufré comprend une matrice de lignes, de points ou d'autres gaufrages.
4. Support de données selon l'une quelconque des revendications précédentes, dans lequel le motif gaufré comprend des lignes gaufrées ou des séries de points s'étendant à des angles différents les uns des autres.
5. Support de données selon l'une quelconque des revendications précédentes, dans lequel le motif embossé comprend des caractères alphanumériques, des numéros de série, des codes, des symboles, des images ou des motifs géométriques.
6. Support de données selon l'une quelconque des revendications précédentes, dans lequel le substrat de la zone imprimée est du papier, du plastique, du papier laminé ou enduit d'une feuille de plastique, ou des matériaux composites multicouches.
7. Support de données selon l'une quelconque revendication précédente, dans lequel le substrat est imprimé avec des lignes ou des formes parallèles de

sorte que le motif gaufré structuré produise un effet optique Moiré.

8. Support de données selon l'une quelconque des revendications précédentes, dans lequel la fiche de données est une carte d'identité, une page de passeport, une carte de crédit ou autre.

9. Procédé de fabrication d'un support de données selon l'une quelconque des revendications précédentes, le procédé comprenant les étapes consistant à

fournir une zone imprimée dans un support de données convenant à l'apposition d'une signature écrite, dans laquelle la zone imprimée comprend des lignes gaufrées étendues à différents angles les unes par rapport aux autres, définissant différentes formes qui sont plus ou moins visibles lorsque le support de données est incliné, tourné ou regardé sous différents angles par rapport à la source lumineuse, dans lequel les lignes gaufrées dans certaines régions sont plus fines que les lignes plus grossières, plus profondes et plus espacées dans les autres régions ;

dans lequel les lignes les plus grossières et les plus profondes sont d'une épaisseur et d'une largeur telles qu'elles sont détectables au toucher en plus d'être visibles à l'œil nu ;

dans lequel la zone gaufrée est produite par un procédé d'impression par gravure sur cuivre, dans lequel des dépressions de gravure ou d'attaque sont produites dans les plaques d'impression pour produire une image imprimée sur la zone gaufrée.

10. Procédé selon la revendication 9, dans lequel les gravures de la plaque d'impression ne sont pas, ou au moins partiellement, remplies d'encre d'impression avant l'opération d'impression.

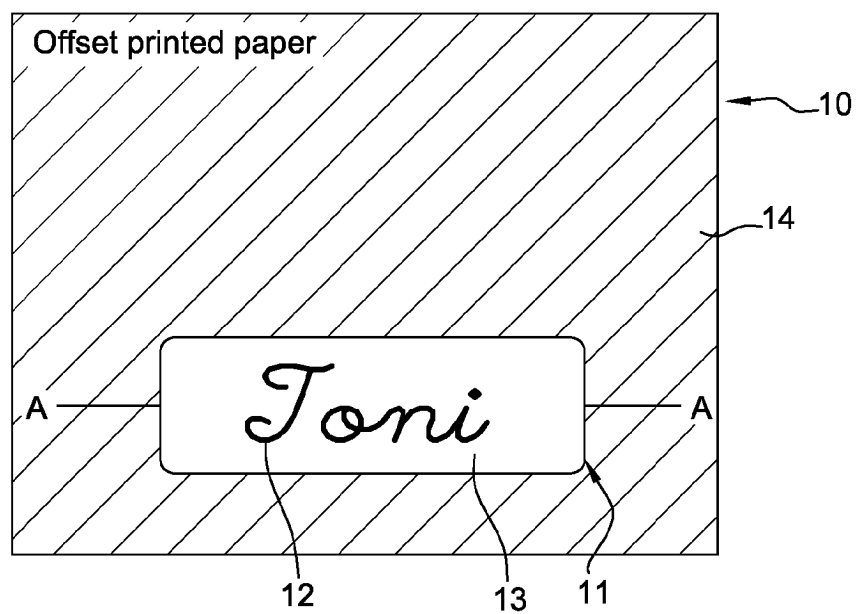


Fig. 1

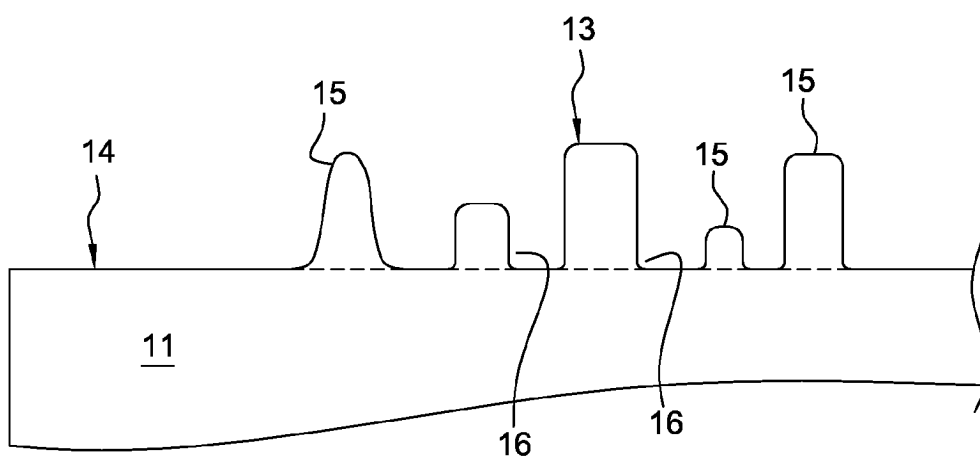


Fig. 2

REFERENCES CITED IN THE DESCRIPTION

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