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(54) **Document, such as a check and the like, with forgery prevention means**

Dokument, wie zum Beispiel Scheck od. dgl., mit Mitteln zur Verhinderung von Fälschungen

Document, tel un chèque ou similaire, avec moyens pour empêcher la contrefaçon

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(56) References cited:
**EP-A- 0 176 403 DE-A- 2 801 015
GB-A- 1 425 028 US-A- 3 400 003**

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Description

The present invention relates to a document, such as a check and the like, with forgery prevention means.

As is known, a problem which is currently strongly felt in various fields, and most of all in the case of checks, is the one related to the possibility of preventing the forgery of the document, i.e. the fraudulent alteration of the amounts written on the check.

Currently, delible inks are used, for example, on checks in the region where the digits related to the amount are written, in the region where the amount is written in letters and in the region related to the payee, but these solutions have not always proved themselves able to clearly indicate that forgery has occurred. In fact, not infrequently, after fraudulently tampering with the writing present in these regions, the forger "reconstructs" the region by applying color so as to conceal the tampering.

In this situation, it is therefore not possible to easily and rapidly make sure that forgery has occurred; furthermore, currently there are no means which allow to clearly point out that forgery has occurred.

Known from DE-A-2 801 015 is an identity card made of a synthetic sheet with a writing zone, on said writing zone being applied a first layer of ink suitable for writing on it, on said layer being printed a second layer of ink which is fluorescent when it is illuminated with ultraviolet light, said second layer being printed with a third layer of reactive ink.

From EP-A-0 176 403 is known an anti forgery method for a document consisting of a P.V.C. substrate, on which a signature is to be applied, consisting in applying a first layer of ink on a zone for applying a signature, said ink including a pigment and a product which gives a certain porosity, applying on some zones of said first layer a transparent porous color which allows to obtain a fluorescence when illuminated with ultraviolet light, applying on said second layer a third layer of a second ink which is a pigmented vinyl ink, and applying the signature on said third layer with an indelible ink.

The aim of the present invention is indeed to solve the above described problem by providing a document, such as a check and the like, with forgery prevention means which allows to detect a forgery, even automatically, clearly pointing out even attempts at concealing forgery.

Within the scope of the above aim, a particular object of the invention is to provide a document wherein the forgery prevention means can be integrated in other elements which are normally provided in a check, so that said means may not be immediately detectable to the naked eye, making it even more difficult to reconstruct the region tampered with.

Another object of the present invention is to provide a document, such as a check or the like, which by virtue of its peculiar characteristics of execution is capable of giving the greatest assurances of reliability and safety in use.

Not least object of the present invention is to provide a document, such as a check and the like, which can be obtained by using printing inks which are easily commercially available.

This aim, the objects mentioned and others which will become apparent hereinafter are achieved by a document, such as a check and the like, with forgery prevention means, as described in claim 1.

Further characteristics and advantages will become apparent from the description of some preferred but not exclusive embodiments of a document, such as a check and the like, with forgery prevention means, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is a schematic perspective view of a check upon which regions all with the same color characteristic are printed;

figure 2 is a perspective view of a check upon which are provided regions alternated with other regions having different characteristics;

figure 3 is a view of a document, such as a check, with mutually overlapping regions.

With reference to the above figures, and in particular to figure 1, the document, such as a check and the like, with forgery prevention means, according to the invention, comprises a sheet-like element, generally designated by the reference numeral 1, which in the specific case of checks can be constituted by a paper sheet with or without a watermark, which defines at least a first portion 2 for indicating the amount in digits, a second portion 3 for indicating the amount in letters, and a third portion 4 for indicating the payee of the check.

An important peculiarity of the document according to the invention is constituted by the fact that regions printed with an ink which can be erased by chemical and/or mechanical action, designated by 10, are applied in said portions or in some of said portions. Said ink is selected so as to have a preset color response when it is illuminated by a light source of preset wavelength.

In this manner, even if tampering has been performed in order to change the digits and/or the writing and the region has been subsequently reconstructed, by applying colors or the like, so as to make the forgery not evident to the eye, it is instead possible to clearly point out said forgery by means of a light source of a very specific type, such as for example a particular wavelength, so that the regions which have not been tampered with will have a certain color response which can be clearly pointed out visually, whereas the forged region cannot have the same color response, since the color does not have the same characteristics as the ink used originally.

According to what is shown in figure 2, the same manufacturing criterion can allow to create a code which can be read, for example by means of a fiber-optics head or similar elements; in this solution, first regions 20 and second regions 21 which have mutually different color responses when illuminated with light sources having

preset wavelengths are provided; thus, essentially, when the first and second regions, which appear to have the same color in normal light, are illuminated by a source having a preset wavelength or two different wavelengths, said first and second regions appear to have mutually different colors and it is possible to obtain such a difference that the optical reading head can detect only the regions which respond to a certain wavelength, thus allowing to create a code which can be read automatically by the machine.

Obviously, if tampering is performed, the detection of said code is no longer possible, and in any case the different color response is immediately pointed out in the presence of the light source at a preset wavelength.

According to what is shown in figure 3, it is possible to provide, in the portions where for example the amounts in digits, the amounts in letters or the payee are indicated, a lower region 30 and an upper region 31 which have the same color, with the difference that the upper region 31 is produced with delible ink which responds to a preset wavelength of the light source, whereas the lower region is produced with indelible ink.

In this embodiment, if forgery is attempted, the forger removes the upper layer, without being immediately aware of the fact, so that upon subsequent verification performed with a light source of preset wavelength, in the region where the upper layer has been removed there will be a different color response which makes the forgery in the preset region immediately evident and obvious.

As can be seen from the above description, it is thus possible, by applying regions with an ink which can be erased by chemical and/or mechanical action and which, if illuminated with a light source having a preset wavelength or wavelengths, has a different color response, to immediately point out that tampering has occurred, since even reconstruction of the region with other types of inks or dyes allows its detection.

It should also be added to the above that it is possible to provide the regions with elements which are not immediately detectable as forgery prevention elements, since said regions might be provided with a normal pattern which constitutes the background of the entire document, so that said regions cannot be immediately distinguished from the other ones.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the scope of each element identified by way of example by such reference signs.

Claims

1. Document, with forgery prevention means, which comprises a paper sheet-like element (1) having defined on a surface thereof at least one portion (2,3,4) for writing indications, characterized in that

regions (10,20,21,30,31) of said at least one portion for writing indications of said paper sheet-like element are printed with an ink which can be erased by chemical and/or mechanical action, said ink giving a preset color response when said regions are illuminated by a light source of preset wavelength in order to visually point out that tampering with parts of said regions has occurred.

2. Document according to claim 1 characterized in that it comprises, in said at least one portion for writing indications, a first region (20) printed with a first ink which can be erased by chemical and/or mechanical action and a second region (21) printed with a second ink which can be erased by chemical and/or mechanical action, said first and second inks giving preset and mutually different color responses when said first and second regions are illuminated by a light source of preset wavelength or wavelengths in order to visually point out that tampering with parts of said regions has occurred.
3. Document according to claim 2, characterized in that said first regions (20) and said second regions (21) constitute a code which is detectable by a fiber-optics reading head.
4. Document according to claim 1 characterized in that it comprises, in said at least one portion for writing indications, at least one region is printed with a lower layer (30) of a first indelible ink and at least one upper layer (31) of a second ink which can be erased by chemical and/or mechanical action is printed on said lower layer, said second ink giving a preset color response, which is different from the response of said first ink, when it is illuminated by a light source of preset wavelength in order to visually point out that tampering with at least parts of said upper layer has occurred.
5. Document according to claims 4, characterized in that said lower layer has a coloring which is substantially identical to the coloring of said upper layer.

Patentansprüche

1. Dokument mit Mitteln zur Verhinderung von Fälschungen, welches ein papierbogenartiges Element (1) umfaßt, wobei auf einer Oberfläche davon mindestens ein Abschnitt (2,3,4) zum Schreiben von Angaben festgelegt ist, dadurch gekennzeichnet, daß Bereiche (10,20,21,30,31) dieses mindestens einen Abschnitts zum Schreiben von Angaben des papierbogenartigen Elements mit einer Farbe bedruckt sind, die durch einen chemischen und/oder mechanischen Vorgang entfernt werden kann, wobei diese Farbe eine vorbestimmte Farbreaktion zeigt, wenn diese Bereiche mit einer Lichtquelle mit einer vorher ausgewählten Wellenlänge beleuchtet

werden, um visuell darauf hinzuweisen, daß sich jemand an Teilen dieser Bereiche zu schaffen gemacht hat.

2. Dokument nach Anspruch 1, dadurch gekennzeichnet, daß es in diesem mindestens einen Abschnitt zum Schreiben von Angaben einen ersten Bereich (20), der mit einer ersten Farbe bedruckt ist, die durch einen chemischen und/oder mechanischen Vorgang entfernt werden kann, und einen zweiten Bereich (21) umfaßt, der mit einer zweiten Farbe bedruckt ist, die mit einem chemischen und/oder mechanischen Vorgang entfernt werden kann, wobei die ersten und zweiten Farben vorbestimmte und zueinander unterschiedliche Farbreaktionen zeigen, wenn die ersten und zweiten Bereiche mit einer Lichtquelle mit einer vorher ausgewählten Wellenlänge bzw. vorher ausgewählten Wellenlängen beleuchtet werden, um visuell aufzuzeigen, daß sich jemand an Teilen dieser Bereiche zu schaffen gemacht hat.
3. Dokument nach Anspruch 2, dadurch gekennzeichnet, daß die ersten Bereiche (20) und die zweiten Bereiche (21) einen Code darstellen, der mit einem Faseroptik-Lesekopf erfaßt werden kann.
4. Dokument nach Anspruch 1, dadurch gekennzeichnet, daß es in dem mindestens einen Abschnitt zum Schreiben von Angaben mindestens einen Bereich umfaßt, der mit einer unteren Schicht (30) einer ersten dokumentenechten bzw. unlöschbaren Farbe bedruckt ist, und mindestens eine obere Schicht (31) einer zweiten Farbe, die durch einen chemischen und/oder mechanischen Vorgang entfernt werden kann, auf der unteren Schicht aufgedruckt ist, wobei die zweite Farbe eine vorbestimmte Farbreaktion zeigt, die sich von der Reaktion der ersten Farbe unterscheidet, wenn diese mit einer Lichtquelle einer vorbestimmten Wellenlänge beleuchtet wird, um visuell darauf hinzuweisen, daß sich jemand zumindest an Teilen der oberen Schicht zu schaffen gemacht hat.
5. Dokument nach Anspruch 4, dadurch gekennzeichnet, daß die untere Schicht eine Färbung aufweist, die im wesentlichen identisch zu der Färbung der oberen Schicht ist.

Revendications

1. Document avec des moyens pour empêcher une falsification, qui comprend un élément analogue à une feuille de papier (1) comportant, définie sur une de ses surfaces, au moins une portion (2,3,4) pour écrire des signes, caractérisé en ce que des régions (10,20,21,30,31) de la ou lesdites portions pour écrire des signes dudit élément analogue à une feuille de papier sont imprimés à l'aide d'une encre

qui peut être effacée par une action chimique et/ou mécanique, ladite encre donnant une réponse colorée prédéterminée lorsque lesdites régions sont éclairées par une source lumineuse d'une longueur d'onde prédéterminée afin de mettre en évidence visuellement qu'une altération a eu lieu dans des parties desdites régions.

2. Document selon la revendication 1, caractérisé en ce qu'il comprend dans la ou lesdites portions pour l'écriture de signes une première région (20) imprimée à l'aide d'une première encre qui peut être effacée par une action chimique et/ou mécanique et une seconde région (21) imprimée à l'aide d'une seconde encre qui peut être effacée par une action chimique et/ou mécanique, lesdites première et seconde encres donnant des réponses colorées prédéterminées mutuellement différentes lorsque lesdites première et seconde régions sont éclairées par une source lumineuse d'une longueur d'onde ou de longueurs d'ondes prédéterminées afin de mettre en évidence visuellement qu'une altération a eu lieu dans des parties desdites régions.
3. Document selon la revendication 2, caractérisé en ce que lesdites premières régions (20) et lesdites secondes régions (21) constituent un code qui est détectable par une tête de lecture à fibre optique.
4. Document selon la revendication 1, caractérisé en ce qu'il comprend dans la ou lesdites portions pour écrire des signes au moins une région qui est imprimée avec une couche inférieure (30) d'une première encre indélébile, et au moins une couche supérieure (31) d'une seconde encre qui peut être effacée par une action chimique et/ou mécanique est imprimée sur ladite couche inférieure, ladite seconde encre donnant une réponse colorée prédéterminée qui est différente de la réponse de ladite première encre lorsqu'elle est éclairée par une source lumineuse d'une longueur d'onde prédéterminée afin de mettre en évidence visuellement qu'une altération a eu lieu dans des parties au moins de ladite couche supérieure.
5. Document selon la revendication 4, caractérisé en ce que ladite couche inférieure a une coloration qui est sensiblement identique à la coloration de ladite couche supérieure.

