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### (54) SYSTEM AND METHOD FOR IDENTIFYING DOCUMENTS

SYSTEM UND VERFAHREN ZUR IDENTIFIZIERUNG VON DOKUMENTEN

SYSTÈME ET PROCÉDÉ POUR IDENTIFIER DES DOCUMENTS

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**DE-A1- 102012 214 280** **US-A1- 2018 018 838**

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## Description

**[0001]** The object of the present invention is a system and method for identifying documents. The objects of the invention are applicable in securing, authorizing and tracking documents, especially banknotes, cheques, securities and identity documents, e.g. such as passports.

**[0002]** Valuable documents, such as banknotes and cheques, are often counterfeited due to their corresponding monetary value. In order to reduce the likelihood of forgery attempts, as well as to prevent or at least to make forgery somewhat more difficult, security elements are placed on valuable documents. In the art, a number of various security elements have been developed, for example in the form of a specific and secret substrate recipe, a watermark applied to a document, security fibres or threads embedded in a substrate structure, planchettes constituting a unique element of diverse shapes included already at the stage of paper web manufacturing, or chemical security features, whose main purpose is to protect the document against untraceable removal of a security feature or change of this security feature. A separate group of security features used in valuable documents are print security features which may be implemented by a substrate (e.g. in the form of difficult-to-print materials, i.e. plastics) or by a printing technique (e.g. the use of a combination of multiple printing techniques, i.e. offset printing, screen printing, typography, steel engraving, cold-stamping, hot-stamping), or by a printing ink (e.g. the use of special compositions of printing inks such as optically variable, thermochromic, photochromic, luminescent, opalescent or magnetic ones), and finally by the printing of special graphics. As for the printing of special graphics, a very popular security technique, in particular used for banknotes, is to include a unique banknote number. Among the ways to provide banknotes with security features, the use of microprinting, that is a technique to include micro-metre-sized prints, which, due to their small size and specific distribution, are invisible or undetected by the naked eye and can only be identified using a magnifying optical system, has become popular.

**[0003]** Polish patent application P.410707 discloses a method for securing documents, articles and packaging against counterfeiting, consisting in that at least one QR code is fixedly placed in determined places on the secured document, article and/or packaging, enabling the download of the image and/or other relevant information of the secured document, article or packaging registered in a database created for this purpose. The method for verifying the authenticity of documents, articles and packaging secured against counterfeiting consists in that with the use of the QR codes applied on the document, article or packaging, by means of a reader, the encoded image and/or other relevant information that the authentic document, article or packaging holds is read from the database server and displayed, and then compared with the document, article or packaging being verified, to

determine whether these are authentic.

**[0004]** The object of European patent EP2994573B1 is a method for providing security documents and security documents which may be e.g. passports or banknotes.

The method for providing a security document with a security feature is implemented in a security document comprising a document substrate constituting a paper substrate and a security element embedded therein, comprising an element substrate and material sensitive to laser light. The method comprises a step of directing the laser light onto the document substrate to alter the material sensitive to laser light to form a detectable marking in the security element.

**[0005]** The object of International Patent Application WO17100952A1 is a method and device for verifying the authenticity of a security document. The documents to be verified may be banknotes, cheques, stock certificates or other identification documents. Small surface structures, which may be obtained by intaglio printing, embossing or laminating, are applied on their surface. In order to verify the authenticity of the document, it is input in the authentication device, where the surface structures of the document are scanned via a sensor specifically adapted for purpose. The scan obtained is compared with at least one reference pattern, placed in the verification device. The verification device may preferably be a tablet, computer or phone. Where the structures are to encode information, encoding techniques, such as bar codes, which are read by detectors with an optical system, are used.

**[0006]** German patent document DE102017010827A1 discloses a regional or parallel currency for rapid dissemination. The said solution aims to provide a regional currency that can also be used outside regional markets. This aim is achieved through modifying the existing banknotes by printing or sticking an optical code made of a precious metal thereon. The information contained in the code is obtained by scanning the code with an optical scanner and then connecting to a specified website where the correct value of the banknote can be verified, including the value of the marking made of a precious metal.

**[0007]** The object of Russian patent document RU192018U1 is a banknote detector with advanced banknote authentication. The said solution comprises an optical detector, which is a camera. The microscope camera checks the quality of the microprint applied to the banknote and, on that basis, it determines its authenticity. Owing to a built-in software, the detector analyses the places, as predetermined for each banknote, where microprint or microdrawings are applied.

**[0008]** US 2018/0018838 A1 discloses a document reader which is provided with slots around a document support which facilitates the alignment of the document.

**[0009]** The technical problem faced by the present invention is to put forward a system and method for identifying documents allowing to effectively secure a document against attempts to copy or counterfeit it, wherein the identification and authorization process will

be performed in a relatively simple, fast and reliable way and will be suitable for implementation in already existing and prepared documents. Moreover, it is desired that the system and method for identifying documents also make it possible to track the use of the document, while ensuring that authenticity can be verified in real time. In addition, it is desired that the system for identifying document be a compact solution having a simple structure and not requiring specialized detection components.

**[0010]** The first object of the invention is a system for identifying documents, comprising a document and a detection module with a receiving slot, for inserting the document into the detection module, wherein at least one identification mark is arranged on the document and the detection module is equipped with an optical detector and communication means for communication with an external database, characterized in that the identification mark is arranged at distance  $x$  from the adjacent vertical edge of the document and at distance  $y$  from the adjacent horizontal edge of the document, and the detection area of the optical detector is arranged at distance  $x$  from the vertical inner wall of the receiving slot and at distance  $y$  from the horizontal inner wall of the receiving slot.

**[0011]** In a preferred embodiment of the invention, the distance  $x$  and the distance  $y$  are equal.

**[0012]** According to the invention, the detection module further comprises a magnifying optical system arranged between the optical detector and the receiving slot.

**[0013]** In a further preferred embodiment of the invention, the magnifying optical system is a lens, lens assembly or objective lens.

**[0014]** The identification mark is placed in the area of two, preferably three or four corners of the document, on one or two sides of the document.

**[0015]** Preferably, the identification mark is a barcode, a QR code, a micro QR code, a nano QR code, graphic, a character string, micrographic, characters in a micro-metric or nanometric scale.

**[0016]** Preferably, the optical detector comprises a CCD or CMOS array.

**[0017]** In a preferred embodiment of the invention, the detection module is further equipped with a guiding cut-out located in the area of the outer corner of the receiving slot.

**[0018]** In a further preferred embodiment of the invention, the detection module is a part of a payment terminal, ATM or fiscal cash register.

**[0019]** In a further preferred embodiment of the invention, the document is a cheque, a banknote, a security, a stock certificate.

**[0020]** The second object of the invention is a method for identifying documents performed in the system for identifying documents as defined in the first object of the invention, characterized in that:

(a) a document is inserted into the receiving slot of the detection module so that the area of the docu-

ment in which the identification mark is located is inserted into the receiving slot,

(b) the image of the identification mark is captured by the optical detector and converted into input information,

(c) the input information is sent to an external database by means of communication means,

(d) the input information is compared and/or identified with the reference information stored in the external database and the comparison and/or identification result is sent back to the detection module.

**[0021]** In a preferred embodiment of the invention, the document is inserted into the receiving slot in a horizontal and/or vertical orientation.

**[0022]** The system and method for identifying documents of the invention provide effective protection of a document against attempts to copy or counterfeit it, wherein the identification and authorization method is performed in a relatively simple, fast and reliable manner and is suitable for implementation in already existing and prepared documents. Moreover, the system and method for identifying documents, owing to each connection to the external server (for identification and/or comparison purposes), enables the tracking of document use, while ensuring that authenticity can be verified in real time. In addition, the system for identifying documents is a compact solution having a simple structure and not requiring specialized detection components. The use of precise location of the identification mark on the document and precise dimensioning of the detection area of the optical detector ensure reliable operation of the system and proper capture of the image of the identification mark. Furthermore, the use of at least four identification marks placed on one or two sides of the document ensures proper operation of the system for identifying documents of the invention, regardless of the configuration used to insert the document into the receiving slot of the detection module. The use of a guiding cut-out in the detection module helps insert the document into the receiving slot. Furthermore, since the detection module is a part of a payment terminal, fiscal cash register or ATM, the safety of use of the device itself and the safety of sending the input information detected by the detection module are ensured.

**[0023]** The solution of the invention is presented in the following embodiments and illustrated in the drawing, in which Fig. 1 shows a top view of a security document being a part of a system for identifying documents according to one embodiment of the invention, Fig. 2 shows a top view of a detection module being a part of the system for identifying documents according to one embodiment of the invention, Fig. 3 shows a side view of the detection module of Fig. 2, Fig. 4 shows a view of detail A of the detection module of Fig. 2, Fig. 5 A-G show top

views of security documents being a part of the system for identifying documents according to further embodiments of the invention, Fig. 6 shows an embodiment of the system for detecting documents with the document inserted into the detection module in a vertical orientation, Fig. 7 shows an embodiment of the system for detecting documents with the document inserted into the detection module in a horizontal orientation, while Fig. 8 A-C show the document in the form of a banknote with successive magnifications of the identification mark placed on the document in an embodiment of the system for detecting documents of the present invention.

#### Example

**[0024]** The system for identifying documents constituting one embodiment of the present invention is schematically illustrated in Fig. 1-4. In general, the system for identifying documents includes document 1 and detection module 2. Document 1 is shown in a top view in Fig. 1. In the present embodiment, document 1 is a cheque formed from paper substrate on which necessary graphics and functional elements have been printed (not shown). Four identification marks 3 have been placed on document 1, each near one of the corners of document 1. Importantly, identification marks 3 in the present embodiment have been placed on one side of document 1. In addition, each of identification marks 3 has been placed on document 1 at a precisely defined location from the edge of document 1. In the present embodiment, each of identification marks 3 is at distance  $x$  from the adjacent vertical edge of document 1 and at distance  $y$  from the adjacent horizontal edge of document 1. It should be emphasized that the number of identification marks 3 placed on document 1 does not constitute a limitation to the scope of the present invention, and in alternative embodiments, it is possible to use a smaller or larger number of identification marks 3, e.g. two, three, five, while maintaining a precise and determined positioning relative to the edge of document 1. The distance of identification mark 3 from a specific edge of document 1 also does not constitute a limitation to the present invention and is adjusted to the geometrical dimensions of document 1 itself. In the present embodiment, document 1 has a length (horizontal dimension) of 7 cm and a height (vertical dimension) of 4 cm. The distance  $x$  of identification marks 3 from adjacent vertical edges of document 1 is  $x = 1$  cm, while the distance  $y$  of identification marks 3 from adjacent horizontal edges of document 1 is  $y = 1$  cm.

**[0025]** The terms "horizontal" and "vertical" used herein are to be regarded conventionally and as referring only to the drawings, for the purpose of a more precise description of the structure of the system for identifying documents of the present invention. It should be emphasized that these terms are not intended to constitute a limitation to the scope of the present invention.

**[0026]** Identification marks 3 placed on document 1

may take any form enabling optical detection and decoding of the information contained in such identification mark 3. For example, identification mark 3 may be a barcode, a QR code, a micro QR code, a nano QR code, graphics, a character string, micrographic, characters in a micro scale. The type of identification mark 3 used does not limit the scope of the present invention, and in alternative embodiments, another type of identification marks 3 may be used provided that it is possible to optically detect and "decode" the information identifying specified document 1. Fig. 8A shows document 1 in the form of a EUR 100 banknote, Fig. 8B shows a first magnification of identification mark 3, while Fig. 8C shows a further magnification of identification mark 3 in the form of a QR code used in this embodiment of the system for identifying documents.

**[0027]** Detection module 2, constituting one of the elements of the system for identifying documents of the present invention, is shown in a top view in Fig. 2, in a side view in Fig. 3 and in the magnification of detail A in Fig. 4. As best illustrated in Fig. 3 and Fig. 4, the detection module 2 comprises a receiving slot 4 into which document 1 to be identified is inserted. The width of the receiving slot 4 is such that it ensures that document 1 to be identified is freely inserted. Receiving slot 4 in a plane dimension (i.e. in a plane parallel to the plane defined by document 1 inserted into detection module 2) has a length  $x'$  greater than the distance  $x$  of identification marks 3 from adjacent vertical edges of document 1 and a height  $y'$  greater than the distance  $y$  of identification marks 3 from adjacent horizontal edges of document 1. Thus, the insertion of document 1 into receiving slot 4 to a full depth, i.e. so that the vertical and horizontal edges of document 1 are in contact with corresponding end walls of receiving slot 4, ensures that at least one identification mark 3 is inserted into receiving slot 4 and is covered by a portion of identification module 2.

**[0028]** As best shown in a partial cross-section in Fig. 4, the detection module 2 comprises optical detector 5, which collects an image of a part of document 1 inserted into detection module 2. Optical detector 5 can be implemented by any technical means known in the art, without limiting the protective scope of the present invention. In various embodiments of the system for identifying documents, optical detector 5 may be a CCD or CMOS array.

**[0029]** Importantly, the detection area ("field of view") of optical detector 5, i.e. the area of the captured image, is closely related to the location of identification mark 3 present on document 1. It should be noted that document 1 can be inserted into detection module 2 in two ways: vertically, i.e. as shown in Fig. 6, and horizontally, i.e. as shown in Fig. 7. Referring back to Fig. 2, the end walls of receiving slot 4, relative to which the detection area of optical detector 5 is arranged, are marked with a dotted line on detection module 2.

**[0030]** When a horizontal orientation (Fig. 7) is used for inserting document 1 into receiving slot 4, the detection

area (and in particular the centre of the detection area) is located at distance  $x$  from the vertical inner wall of receiving slot 4 and at distance  $y$  from the horizontal inner wall of receiving slot 4. Thus, after document 1 has been correctly inserted into receiving slot 4, i.e. in the way ensuring that the edges of document 1 are in contact with their corresponding inner walls of receiving slot 4, the detection area of optical detector 5 is aligned with the location of identification mark 3 on document 1, so that optical detector 5 registers entire identification mark 3.

**[0031]** When a vertical orientation (Fig. 6) is used for inserting document 1 into receiving slot 4, the detection area (and in particular the centre of the detection area) is located at distance  $y$  from the vertical inner wall of receiving slot 4 and at distance  $x$  from the horizontal inner wall of receiving slot 4. Thus, after document 1 has been correctly inserted into receiving slot 4, i.e. in the way ensuring that the edges of document 1 are in contact with their corresponding inner walls of receiving slot 4, the detection area of optical detector 5 is aligned with the location of identification mark 3 on document 1, so that optical detector 5 registers entire identification mark 3.

**[0032]** When identification marks 3 placed on the document are located at an equal distance from corresponding edges of document 1 (i.e.  $x = y$ ), then analogically, the detection area of optical detector 5 is also located at an equal distance from corresponding inner walls of receiving slot 4, and document 1 can be inserted into detection module 2 in a horizontal or vertical configuration, ensuring correct registration of identification mark 3.

**[0033]** In addition, as best illustrated in Fig. 4, optical detector 5 is equipped with magnifying optical system 6 which enables the detection of identification marks 3 at a higher resolution, especially when identification marks 3 in the form of micro- or nano-printing are used. Magnifying optic system 6 is implemented with the use of technical means known in the art, such as lens, lens set, objective lens, etc.

**[0034]** As shown in Fig. 2, detection module 2 is further equipped with guiding cut-out 7 made in the outer corner of receiving slot 4. The guiding cut-out 7 is made only in one portion of detection module 2, in the present embodiment it is in the front portion relative to receiving slot 4. Guiding cut-out 7 helps insert document 1 into receiving slot 4.

**[0035]** Detection module 2 further comprises all components necessary for proper operation, which components, for the clarity of the disclosure, will not be described in greater detail. In particular, detection module 2 is equipped with a control unit which manages the operation of detection module 2, including the activation of optical detector 5, image collection, image conversion to a digital form, etc. In addition, detection module 2 comprises (or is connected to) communication means, including means for wired or wireless communication for sending decoded information transformed into a digital form and obtained by imaging identification mark 3 to an external server (e.g. the server of the bank issuing the

cheque) where the data enabling the comparison and/or identification of the information contained in identification mark 3 is stored. The communication means also provide feedback communication with the external server, for example for the purposes of receiving the feedback message being a result of the comparison and/or identification of identification mark 3. Detection module 2 can be further equipped with indicating means, which can be arranged on the housing of detection module 2 and intended to indicate the operational status of detection module 2 as well as to display a message indicating the result of the comparison and/or identification of identification mark 3 present on document 1.

**[0036]** Fig. 5 A-G show various embodiments of document 1 being part of the system for identifying documents of the present invention. In Fig. 5A, document 1 has one identification mark 3 placed on its surface, near the corner of document 1, at distance  $x$  from the adjacent vertical edge of document 1 and at distance  $y$  from the adjacent horizontal edge of document 1. In such a case, the inserting of document 1 into detection module 2 requires the document to be positioned correctly both as regards the position of the corner and the detection (horizontal or vertical) orientation.

**[0037]** In Fig. 5B, document 1 has two identification marks 3 placed on its surface, near two corners of document 1, at distance  $x$  from the adjacent vertical edge of document 1 and at distance  $y$  from the adjacent horizontal edge of document 1. In such a case, the inserting of document 1 into detection module 2 requires the document to be positioned correctly both as regards the position of the corner and the detection (horizontal or vertical) orientation.

**[0038]** In Fig. 5C, document 1 has two identification marks 3 placed on its surface, near two corners of document 1, at distance  $x$  from the adjacent vertical edge of document 1 and at distance  $y$  from the adjacent horizontal edge of document 1. In such a case, the inserting of document 1 into detection module 2 requires the document to be positioned correctly both as regards the position of the corner and the detection (horizontal or vertical) orientation.

**[0039]** In Fig. 5D, document 1 has three identification marks 3 placed on its surface, near three corners of document 1, at distance  $x$  from the adjacent vertical edge of document 1 and at distance  $y$  from the adjacent horizontal edge of document 1. In such a case, the inserting of document 1 into detection module 2 requires the document to be positioned correctly both as regards the position of the corner and the detection (horizontal or vertical) orientation.

**[0040]** In Fig. 5E, document 1 has one identification mark 3 placed on the surface, near the horizontal edge of document 1, in the centre of document 1, at distance  $x$  from each of the vertical edges of document 1 and at distance  $y$  from the adjacent horizontal edge of document 1. In addition, an incision is arranged on document 1 to indicate the place where identification mark 3 is located.

**[0041]** In Fig. 5F, document 1 has eight identification marks 3 placed on its surface, near four corners of document 1 on both sides of document 1, at distance x from the adjacent vertical edge of document 1 and at distance y from the adjacent horizontal edge of document 1.

**[0042]** In Fig. 5G, document 1 has a form of a security strip with one narrow (lower) end and another wide (upper) end. In the centre of the narrow end, one identification mark 3 is placed at distance x from both adjacent vertical edges of document 1 and at distance y from the adjacent horizontal edge of document 1.

**[0043]** It is worth noting that in the present embodiment of the system for identifying documents of the invention, detection module 2 is a part of a payment terminal, which ensures its safe use as well as a secure and reliable connection to external databases, such as bank databases. In alternative embodiments, detection module 2 may be a free-standing device, included in a payment system or connected into an individual communication network, or may be a part of any payment or banknote handling devices such as ATMs, fiscal cash registers, etc.

**[0044]** The method for identifying documents according to one embodiment of the present invention is carried out in the following steps. In the first step, (document) banknote 1 is inserted into receiving slot 4 of detection module 2 so that the area of the document in which identification mark 3 is located is inserted into receiving slot 4 and covered by a portion of detection module 2. Depending on the number and configuration of used identification marks 3 on document 1, document 1 is inserted into receiving slot 4 in a horizontal and/or vertical orientation (as shown in Fig. 6 and 7). In the next step, the image of identification mark 3 is captured by optical detector 5 (through magnification optic system 6) and converted into input information. Depending on the type of identification mark 3 used, the conversion into input information may consist in decoding identification mark 3 (in the case of a barcode or QR) or changing it into a digital form (in the case of a string of characters or graphic). In the next step, the input information is sent to the external database by means of communication means. Depending on whether detection module 2 is equipped with its own communication means and whether the potential communication means are wireless or wired means, the input information is sent using an appropriate and available technology to an external server storing or having access to a database with reference information (e.g. to an external bank server). After the input information has been sent, the input information is compared or identified in the external server with the reference information stored in the external database and the comparison or identification result is sent back to detection module 2. Such comparison or identification results may comprise information on the validity, accuracy and/or authenticity of document 1 being identified and this information may be displayed on an optional indicating device.

#### List of references

#### **[0045]**

- 5 1 - document
- 2 - detection module
- 3 - identification mark
- 10 4 - receiving slot
- 5 - optical detector
- 15 6 - magnifying optical system
- 7 - guiding cut-out

#### **Claims**

- 20 1. A system for identifying documents, comprising a document (1) and a detection module (2) with a receiving slot (4), for inserting the document (1) into the detection module (2), wherein at least one identification mark (3) is arranged on the document (1), and the detection module (2) is equipped with an optical detector (5) and communication means for communication with an external database, wherein the identification mark (3) is arranged at distance x from the adjacent vertical edge of the document (1) and at distance y from the adjacent horizontal edge of the document (1), and the detection area of the optical detector (5) is arranged at distance x from the vertical inner wall of the receiving slot (4) and at distance y from the horizontal inner wall of the receiving slot (4), **characterized in that** the identification mark (3) is placed in the area of at least two corners of the document (1), and **that** the detection module (2) comprises a magnifying optical system (6) arranged between the optical detector (5) and the receiving slot (4).
- 25 2. The system according to claim 1, **characterized in that** the magnifying optical system (6) is a lens, lens assembly or objective lens.
- 30 3. The system according to any one of claims 1 or 2, **characterized in that** the identification mark (3) is placed in the area of two, three or four corners of the document (1), on one or two sides of the document (1).
- 35 4. The system according to claim 3, **characterized in that** the identification marks (3) are placed on one or two sides of the document (1).
- 40 5. The system according to any one of claims 1 to 4, **characterized in that** the identification mark (3) is a
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barcode, a QR code, a micro QR code, a nano QR code, a graphic, a character string, a micrographic, or characters in a micrometric or nanometric scale.

6. The system according to any one of claims 1 to 5, **characterized in that** the optical detector (5) comprises a CCD or CMOS array. 5
7. The system according to any one of claims 1 to 6, **characterized in that** the detection module (2) is further equipped with a guiding cut-out (7) located in the area of the outer corner of the receiving slot (4). 10
8. The system according to any one of claims 1 to 7, **characterized in that** the detection module (2) is a part of a payment terminal, ATM or a fiscal cash register. 15
9. The system according to any one of claims 1 to 8, **characterized in that** the document (1) is a cheque, a banknote, a security, or a stock certificate. 20
10. A method for identifying documents performed in the system as defined in any one of claims 1 to 9, **characterized in that:** 25
  - (a) a document (1) is inserted into the receiving slot (4) of the detection module (2) so that the area of the document in which the identification mark (3) is located is inserted into the receiving slot (4), 30
  - (b) the image of the identification mark (3) is captured by the optical detector (5) and converted into input information,
  - (c) the input information is sent to an external database by means of communication means, 35
  - (d) the input information is compared and/or identified with the reference information stored in the external database and the result is sent back to the detection module (2). 40
11. The method according to claim 10, **characterized in that** the document (1) is inserted into the receiving slot (4) in a horizontal and/or vertical orientation. 45

#### Patentansprüche

1. Das System zum Identifizieren von Dokumenten, umfassend ein Dokument (1) und ein Erkennungsmodul (2) mit einem Aufnahmeschlitz (4) zum Einführen des Dokuments (1) in das Erkennungsmodul (2), wobei mindestens eine Identifikationsmarkierung (3) auf dem Dokument (1) angeordnet ist und das Erkennungsmodul (2) mit einem optischen Detektor (5) und Kommunikationsmitteln zur Kommunikation mit einer externen Datenbank ausgestattet ist, wobei die Identifikationsmarkierung (3) im Ab-

stand x von der benachbarten vertikalen Kante des Dokuments (1) angeordnet ist und im Abstand y von der benachbarten horizontalen Kante des Dokuments (1) angeordnet ist und der Erkennungs-  
bereich des optischen Detektors (5) im Abstand x von der vertikalen Innenwand des Aufnahmeschlitzes (4) und im Abstand y von der horizontalen Innenwand des Aufnahmeschlitzes (4) angeordnet ist, **dadurch gekennzeichnet, dass** die Identifikationsmarkierung (3) im Bereich von mindestens zwei Kanten des Dokuments (1) angeordnet ist und dass das Erkennungsmodul (2) eine zwischen dem optischen Detektor angeordnete Vergrößerungsoptik (6) umfasst (5) und dem Aufnahmeschlitz (4).

2. Das System nach Anspruch 1, **dadurch gekennzeichnet, dass** das optische Vergrößerungssystem (6) eine Linse, Linsenbaugruppe oder Objektivlinse ist.
3. Das System nach einem der Ansprüche 1 oder 2, **dadurch gekennzeichnet, dass** die Identifikationsmarkierung (3) im Bereich von zwei, drei oder vier Ecken des Dokuments (1) auf einer oder zwei Seiten des Dokuments (1) angeordnet ist.
4. Das System nach Anspruch 3, **dadurch gekennzeichnet, dass** die Identifikationsmarkierungen (3) auf einer oder zwei Seiten des Dokuments (1) angeordnet sind.
5. Das System nach einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** die Identifikationsmarkierung (3) ein Barcode, ein QR-Code, ein Mikro-QR-Code, ein Nano-QR-Code, eine Grafik, eine Zeichenfolge, eine Mikrografik oder Zeichen in einer Mikrometer- oder Nanometerskala ist.
6. Das System nach einem der Ansprüche 1 bis 5, **dadurch gekennzeichnet, dass** der optische Detektor (5) ein CCD- oder CMOS-Array umfasst.
7. Das System nach einem der Ansprüche 1 bis 6, **dadurch gekennzeichnet, dass** das Erkennungsmodul (2) ferner mit einem Führungsausschnitt (7) ausgestattet ist, die im Bereich der äußeren Ecke des Aufnahmeschlitzes (4) angeordnet ist.
8. Das System nach einem der Ansprüche 1 bis 7, **dadurch gekennzeichnet, dass** das Erkennungsmodul (2) Teil eines Zahlungsterminals, Geldautomaten oder einer Steuerkasse ist.
9. Das System nach einem der Ansprüche 1 bis 8, **dadurch gekennzeichnet, dass** das Dokument (1) ein Scheck, eine Banknote, ein Wertpapier oder ein Aktienzertifikat ist.

10. Das Verfahren zum Identifizieren von Dokumenten, die in dem System nach einem der Ansprüche 1 bis 9 durchgeführt werden, **dadurch gekennzeichnet, dass:**

a) ein Dokument (1) in den Aufnahmeschlitz (4) des Erkennungsmoduls (2) eingeführt wird, so dass der Bereich des Dokuments, in dem sich die Identifikationsmarkierung (3) befindet, in den Aufnahmeschlitz (4) eingeführt wird,  
 b) das Bild der Identifikationsmarkierung (3) vom optischen Detektor (5) erfasst und in Eingangsinformationen umgewandelt wird,  
 c) die eingegebenen Informationen mittels Kommunikationsmitteln an eine externe Datenbank gesendet werden,  
 d) die eingegebenen Informationen mit den in der externen Datenbank gespeicherten Referenzinformationen verglichen und/oder identifiziert werden und das Ergebnis an das Erkennungsmodul (2) zurückgesendet wird.

11. Das Verfahren nach Anspruch 10, **dadurch gekennzeichnet, dass** das Dokument (1) in horizontaler und/oder vertikaler Ausrichtung in den Aufnahmeschlitz (4) eingeführt wird.

#### Revendications

1. Système pour identifier des documents, comprenant un document (1) et un module de détection (2) avec une encoche de réception (4), pour insérer le document (1) dans le module de détection (2), dans lequel au moins une marque d'identification (3) est disposée sur le document (1), et le module de détection (2) est muni d'un capteur optique (5) et des moyens de communication pour communiquer avec une base de données externe, dans lequel la marque d'identification (3) est disposée à une distance x d'un bord vertical adjacent du document (1), et une zone de détection du capteur optique (5) est disposée à une distance x de la paroi intérieure verticale de l'encoche de réception (4) et à une distance y de la paroi intérieure horizontale de l'encoche de réception (4), **caractérisé en ce que** la marque d'identification (3) est placée dans la zone d'au moins deux coins du document (1), et **en ce que** le module de détection (2) comprend un système optique de grossissement (6) disposé entre le capteur optique (5) et l'encoche de réception (4).
2. Système selon la revendication 1, **caractérisé en ce que** le système optique de grossissement (6) est une lentille, un ensemble des lentilles ou une lentille de focalisation.
3. Système selon l'une quelconque des revendications

1 ou 2, **caractérisé en ce que** la marque d'identification (3) est placée dans la zone des deux, trois ou quatre coins du document (1), sur un ou deux côtés du document (1).

4. Système selon la revendication 3, **caractérisé en ce que** les marques d'identification (3) sont placées sur un ou deux côtés du document (1).

5. Système selon l'une quelconque des revendications 1 à 4, **caractérisé en ce que** la marque d'identification (3) est un code-barre, un code QR, un microcode QR, un nanocode QR, un graphique, une chaîne de caractères, un micrographique, ou des caractères à l'échelle micrométrique ou nanométrique.

6. Système selon l'une quelconque des revendications 1 à 5, **caractérisé en ce que** le capteur optique (5) comprend une matrice CCD ou matrice CMOS.

7. Système selon l'une quelconque des revendications 1 à 6, **caractérisé en ce que** le module de détection (2) est en outre muni d'un évidement de guidage (7) situé dans la zone du coin extérieur de l'encoche de réception (4).

8. Système selon l'une quelconque des revendications 1 à 7, **caractérisé en ce que** le module de détection (2) fait partie d'un terminal de paiement électronique, d'un guichet automatique bancaire (GAB) ou une caisse enregistreuse.

9. Système selon l'une quelconque des revendications 1 à 7, **caractérisé en ce que** le document (1) est un chèque, un billet de banque, une valeur mobilière, ou un certificat d'action.

10. Procédé pour identifier des documents effectué dans le système tel que défini dans l'une quelconque des revendications 1 à 9, **caractérisé en ce que:**

a) on insère un document (1) dans l'encoche de réception (4) du module de détection (2) de sorte que la zone du document dans laquelle la marque d'identification (3) soit située soit insérée dans l'encoche de réception (4),  
 b) on capture l'image de la marque d'identification (3) par un capteur optique (5) et on la convertit en information d'entrée,  
 c) on envoie l'information d'entrée à la base de données externe par moyens de communication,  
 d) on compare et/ou identifie l'information d'entrée à l'information de référence stockée dans la base de données externe et on renvoie le résultat au module de détection (2).

11. Procédé selon la revendication 10, **caractérisé en**

**ce que** le document (1) est inséré dans l'encoche de réception (4) dans une orientation horizontale et/ou verticale.

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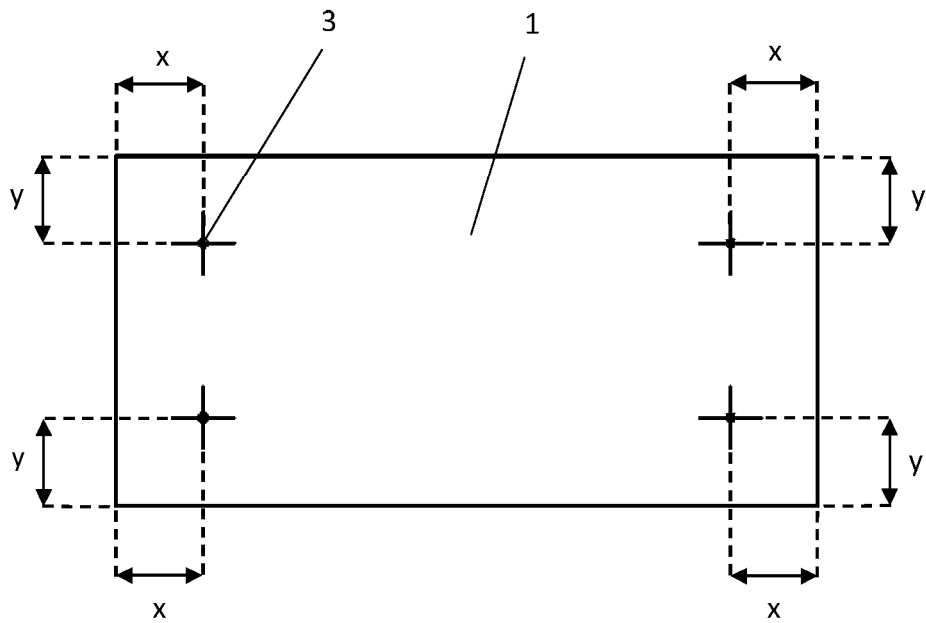


Fig. 1

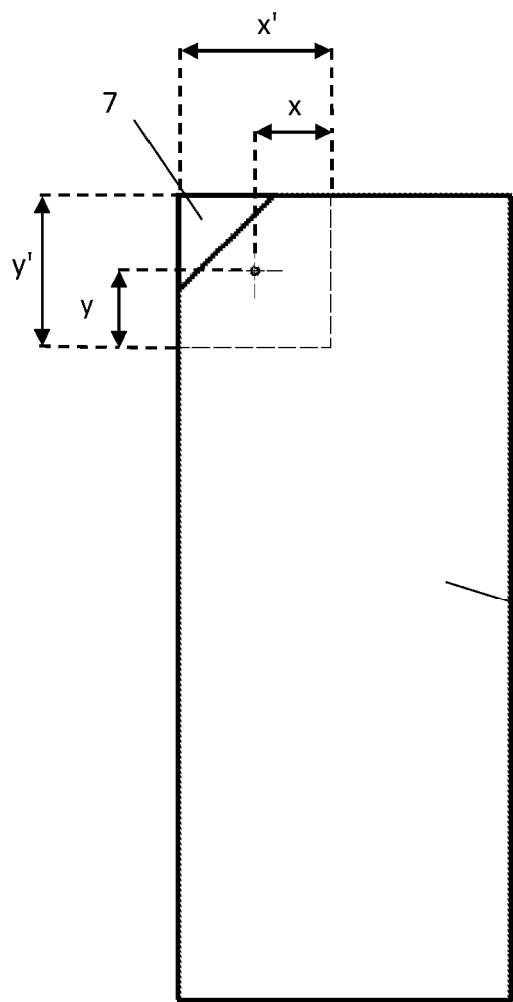


Fig. 2

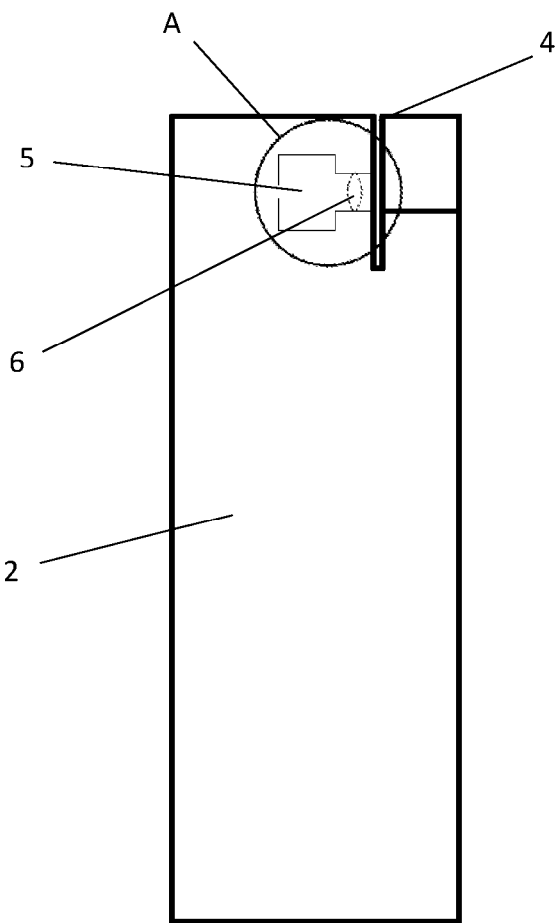


Fig. 3

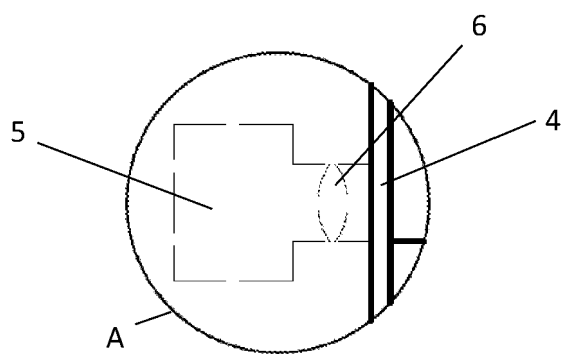


Fig. 4

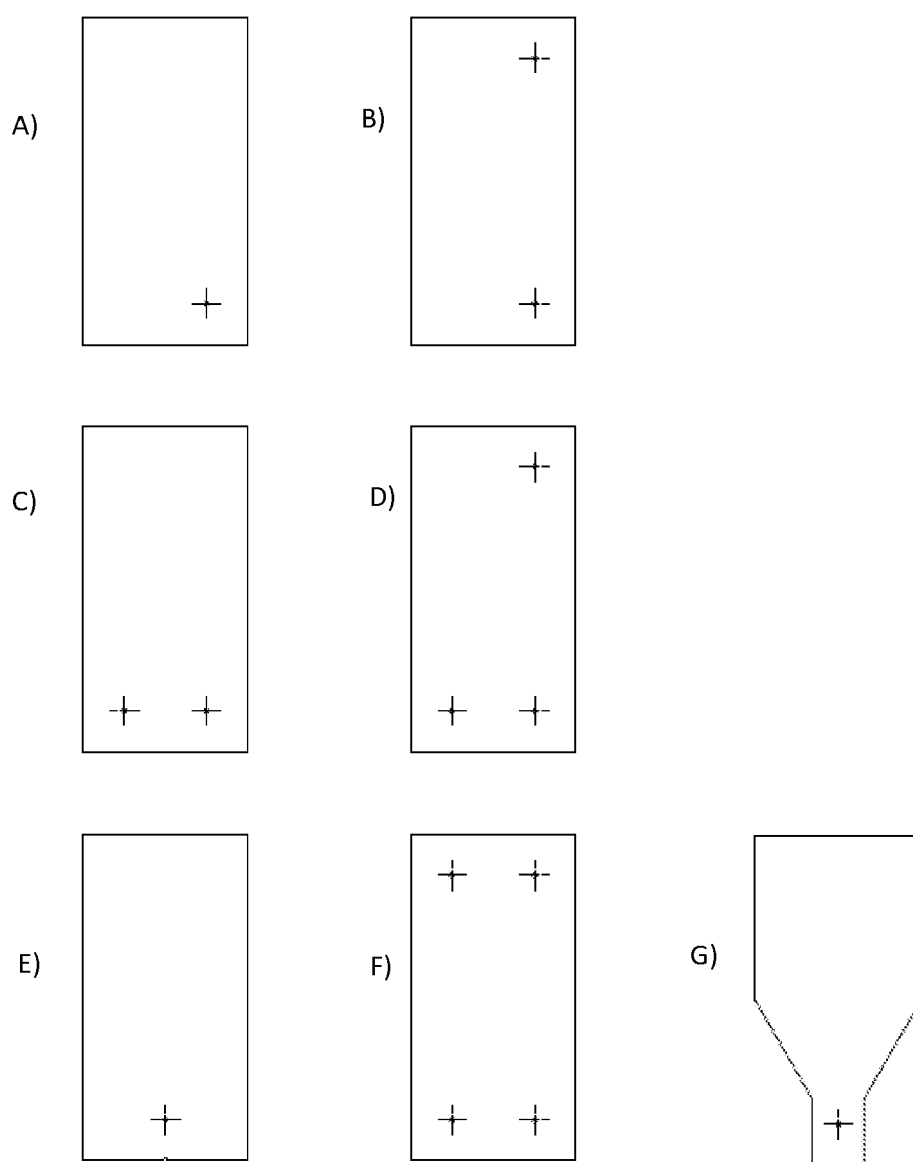


Fig. 5

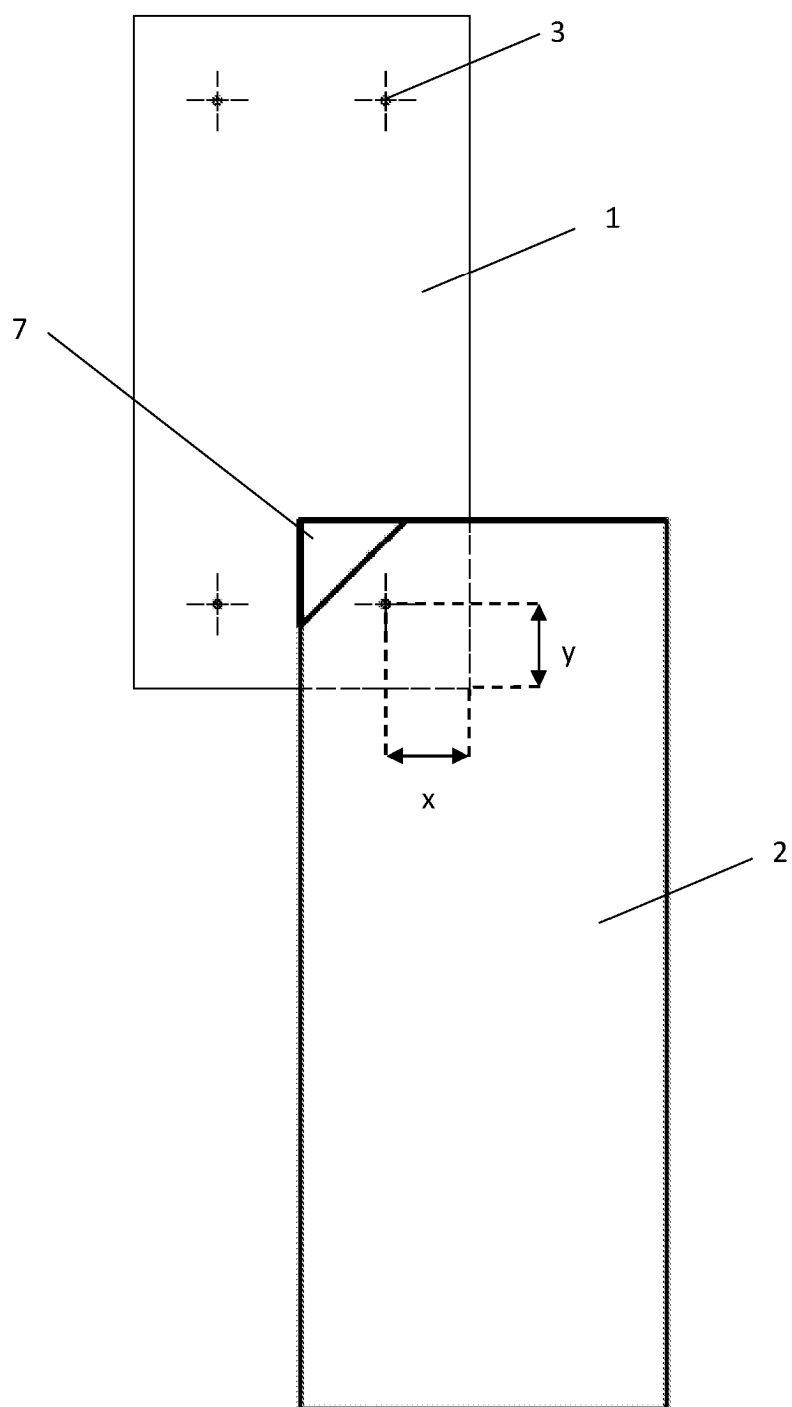


Fig. 6

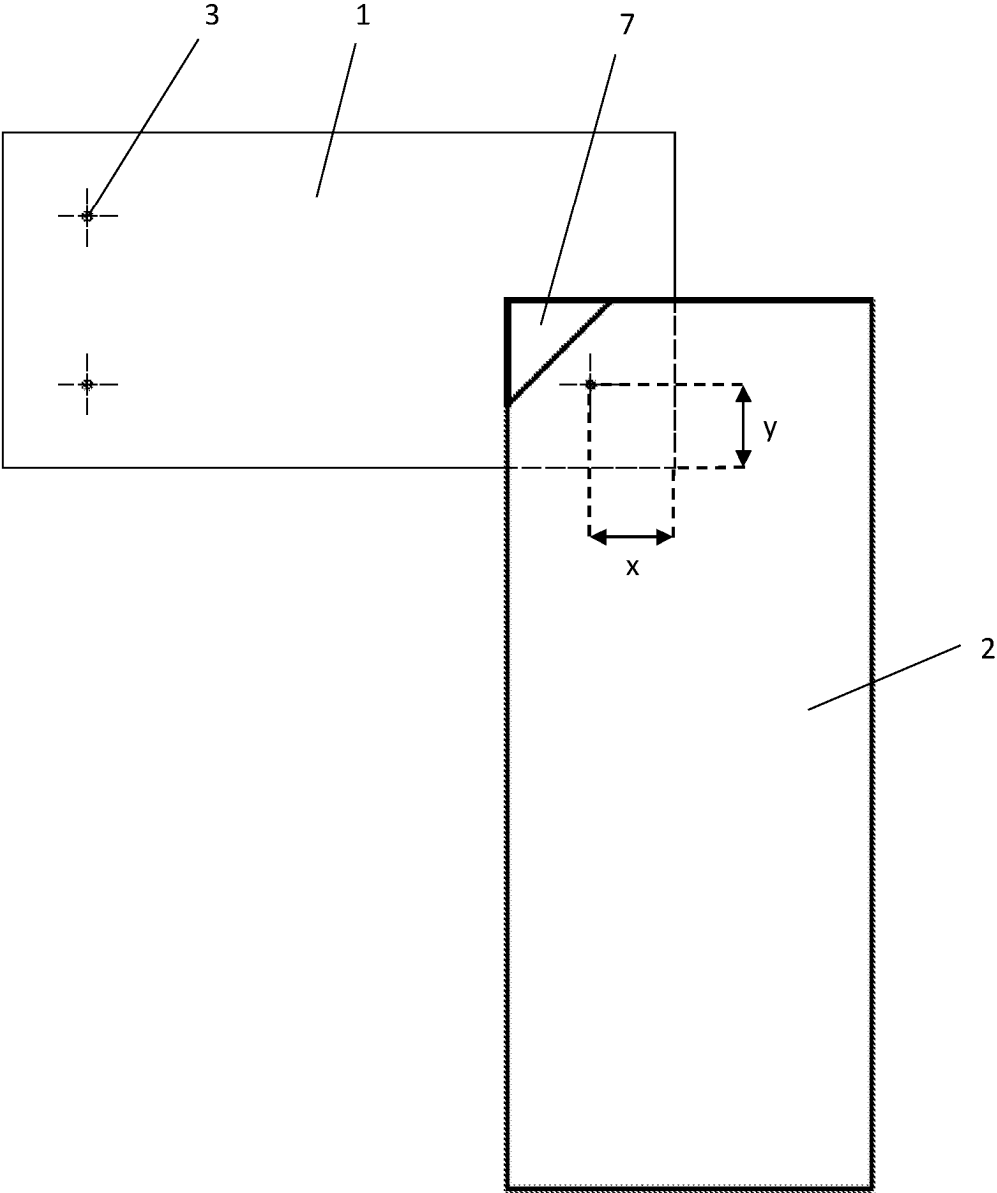


Fig. 7

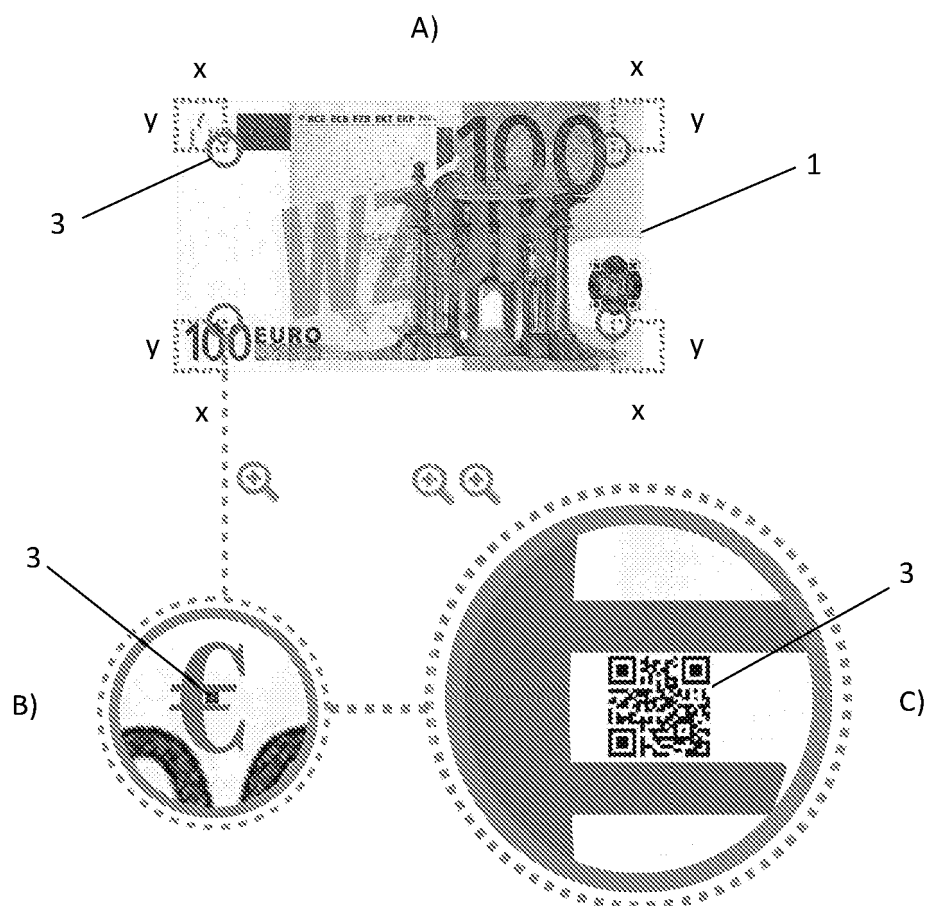


Fig. 8

**REFERENCES CITED IN THE DESCRIPTION**

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