

## Decision on Opposition

Opposition No. 2019-700836

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The case of opposition to the grant of a patent regarding Japanese Patent No. 6505732, entitled, "TWO-DIMENSIONAL BARCODE AND METHOD OF AUTHENTICATION OF SUCH BARCODE", has resulted in the following decision.

### Conclusion

The correction of the scope of claims of Japanese Patent No. 6505732 shall be approved according to the corrected scope of claims attached to the written demand for correction, regarding Claims [1-8], [9-25], and [26-33] after the correction.

The patent according to Claims 1 to 5, 7 to 16, and 18 to 33 of Japanese Patent No. 6505732 is maintained.

The opposition to the grant of a patent according Claims 6 and 17 of Japanese Patent No. 6505732 shall be dismissed.

### Reason

## No. 1 History of the procedures

The application of the patent according to Claims 1 to 33 of Japanese Patent No. 6505732 was filed on November 6, 2014. The establishment of patent right was registered on April 5, 2019. A gazette containing the patent was published on April 24, 2019. The opposition to the grant of the patent was filed by the Opponent, "U-NICA Systems AG", (hereinafter referred to as "the Opponent") on October 23, 2019. The body issued a notice of reasons for rescission on December 23, 2019. The Patentee submitted a written opinion and a written demand for correction on April 3, 2020, which is within a designated period. Against the demand for correction, the Opponent submitted a written opinion on June 3, 2020.

The body issued a notice of reasons for rescission on August 21, 2020. The Patentee submitted a written opinion and written demand for correction (the demand for correction is hereinafter referred to simply as "the Demand for Correction") on September 24, 2020, which is within a designated period. The body notified that the Demand for Correction was made, on October 7, 2020 (Article 120-5(5) of the Patent Act). No written opinion was submitted by the Opponent.

## No. 2 Judgment on Propriety of Correction

### 1 Contents of correction

The contents of correction made by the Demand for Correction are as described in the following Correction A to Correction M. (The underlines were added by the Patentee for indicating corrected portions.)

#### (1) Correction A

The matter recited in Claim 1 of the scope of claims, "the secondary information is generated by using a secret key so that the visible pattern contains a secret (426)", is corrected as follows: "the secondary information is generated by using a secret key so that the visible pattern contains a secret (426)<sub>2</sub>" and "the visible pattern (420) contains a signature (424) that can be verified locally by a device connected to the 2D barcode reader to check authenticity of the 2D barcode (400) (Claims 2-5, 8 which are dependent on the recitation of Claim 1 are also corrected in the same way).

#### (2) Correction B

Claim 6 of the scope of claims is deleted.

(3) Correction C

Regarding the matter recited in Claim 7 of the scope of claims, "Method of any one of Claims 1 to 6", the recitation which is dependent on Claim 1 is rewritten as follows in an independent form:

"A method for creating a 2D barcode (100; 200; 300; 400; 500; 600)

comprising:

embedding primary information that can be read by a 2D barcode reader in a primary information pattern (110; 210; 310; 410; 510; 610); and

embedding secondary information in a visible pattern (120; 220; 320; 420; 520; 620) embedded within said 2D barcode in at least one area that does not contain any primary information such that the secondary information is separated from the primary information, wherein

said secondary information in a visible pattern is formed by light and dark elementary sub-cells having a largest dimension smaller than 50  $\mu\text{m}$  configured to be difficult to reproduce without alteration, and

said secondary information is generated using a secret key such that the visible pattern contains a secret (426)" (Claim 8 which is dependent on Claim 7 is also corrected in the same way).

(D) Correction D

The recitation in Claim 8 of the scope of claims, "Method of any one of Claims 1 to 7", is corrected as follows: "Method of any one of Claims 1 to 5, and 7".

(E) Correction E

The matter recited in Claim 9 of the scope of claims, "the visible pattern is formed by light and dark elementary sub- cells generated using a secret key so that the visible pattern contains a secret (426), having a largest dimension smaller than 50  $\mu\text{m}$ ", is corrected as follows: "the visible pattern is formed by light and dark elementary sub-cells generated using a secret key so that the visible pattern contains a secret (426), having a largest dimension smaller than 50  $\mu\text{m}$ ," and "the visible pattern contains a signature (424) that can be verified locally by a device directly connected to the 2D barcode reader to check authenticity of the 2D barcode" (Claims 10-16, 18-25 which are dependent on the recitation of Claim 9 are also corrected in the same way).

(6) Correction F

Claim 17 of the scope of claims is deleted.

(7) Correction G

The recitation in Claim 18 of the scope of claims, "Product according to any of Claims 9 to 17", is corrected as follows: "Product according to any of Claims 9 to 16".

(8) Correction H

The recitation in Claim 19 of the scope of claims, "Product according to any of Claims 9 to 18", is corrected as follows: "Product according to any of Claims 9 to 16 and 18".

(9) Correction I

The recitation in Claim 20 of the scope of claims, "Method of authenticating a 2D barcode on a product including characteristics of the product according to Claim 17", is corrected as follows: "Method of authenticating a 2D barcode on a product including characteristics of the product according to Claim 9".

(10) Correction J

The recitation in Claim 24 of the scope of claims, "Method of manufacturing a product including characteristics of the product according to any of claims 9 to 19", is corrected as follows: "Method of manufacturing a product including characteristics of the product according to any of claims 9 to 16, 18, and 19".

(11) Correction K

Regarding the matter recited in Claim 24 of the scope of claims, "step of creating a source 2D barcode according to any of Claims 1 to 8", the recitation which is dependent on Claim 1 is rewritten as follows in an independent form: "a step of creating a source 2D barcode, in the method for creating a 2D barcode (100; 200; 300; 400; 500; 600) comprising:

embedding primary information that can be read by a 2D barcode reader in a primary information pattern (110; 210; 310; 410; 510; 610); and

embedding secondary information in a visible pattern (120; 220; 320; 420; 520; 620) embedded within said 2D barcode, in at least one area that does not contain any primary information such that the secondary information is separated from the primary information, wherein

said secondary information in a visible pattern is formed by light and dark elementary sub-cells having a largest dimension smaller than 50 µm configured to be

difficult to reproduce without alteration, and

said second information is generated using a secret key such that the visible pattern contains a secret (426)" (Claim 25 which is dependent on Claim 24 is also corrected in the same way).

(12) Correction L

Regarding the matter recited in Claim 26 of the scope of claims, "Method of any one of Claims 1 to 8", the recitation which is dependent on Claim 1 is rewritten as follows in an independent form: "A method for creating a 2D barcode (100; 200; 300; 400; 500; 600)

comprising:

embedding primary information that can be read by a 2D barcode reader in a primary information pattern (110; 210; 310; 410; 510; 610); and

embedding secondary information in a visible pattern (120; 220; 320; 420; 520; 620) embedded within said 2D barcode, in at least one area that does not contain any primary information such that the secondary information is separated from the primary information, wherein

said secondary information in a visible pattern is formed by light and dark elementary sub-cells having a largest dimension smaller than 50  $\mu\text{m}$  configured to be difficult to reproduce without alteration, and

said secondary information is generated using a secret key such that the visible pattern contains a secret (426)".

(13) Correction M

The matter recited in Claim 27 of the scope of claims, "Method of Claim 1", is rewritten as follows in an independent form: "A method for creating a 2D barcode (100; 200; 300; 400; 500; 600)

comprising:

embedding primary information that can be read by a 2D barcode reader in a primary information pattern (110; 210; 310; 410; 510; 610); and

embedding secondary information in a visible pattern (120; 220; 320; 420; 520; 620) embedded within said 2D barcode, in at least one area that does not contain any primary information such that the secondary information is separated from the primary information, wherein

said secondary information in a visible pattern is formed by light and dark elementary sub-cells having a largest dimension smaller than 50  $\mu\text{m}$  configured to be

difficult to reproduce without alteration, and

said secondary information is generated using a secret key such that the visible pattern contains a secret (426)" (Claims 28-33 which are dependent on Claim 27 are also corrected in the same way).

(14) Group of Claims

Regarding Claims 1 to 8 before the correction, Claims 2 to 8 are directly or indirectly dependent on Claim 1 which is to be corrected. Thus, Claims 2 to 8 after the correction are a group of claims having a relationship stipulated in Article 120-5(4) of the Patent Act.

Regarding Claims 9 to 25 before the correction, Claims 10 to 25 are directly or indirectly dependent on Claim 9 which is to be corrected. Thus, Claims 9 to 25 after the correction are a group of claims having a relationship stipulated in Article 120-5(4) of the Patent Act.

Claims 26 to 33 before the correction are directly or indirectly dependent on Claim 1 which is to be corrected. Thus, Claims 26 to 33 after the correction are a group of claims having a relationship stipulated in Article 120-5(4) of the Patent Act.

(15) Demand for separation of correction unit

The Patentee demands that Claims 26 to 33 after the correction are to be corrected separately from other claims when the correction of Claims 26 to 33 is approved.

2 Propriety of purpose of correction, Presence of new matter, and Existence of enlargement or alteration of the scope of claims

(1) Regarding Correction A

Correction A, which is to add a limitation matter, regarding "the visible pattern (420)" before the correction, "contains a signature (424) that can be verified locally by a device connected to the 2D barcode reader to check authenticity of the 2D barcode (400)", is intended for restriction of the scope of claims. Claim 6 before the correction includes the recitation, "the visible pattern (420) contains a signature (424) that can be verified locally by a device connected to the 2D barcode reader to check authenticity of the 2D barcode (400)". Thus, Correction A does not fall under addition of new matter, and does not enlarge or alter the scope of claims substantially.

(2) Regarding Correction B

Correction B, which is to delete Claim 6, is intended for restriction of the scope of claims. Thus, Correction B does not fall under addition of new matter, and does not enlarge or alter the scope of claims substantially.

(3) Regarding Correction C

Correction C, which is to dissolve citation relation with Claim 1, is intended for dissolution of citation relation. Thus, Correction C does not fall under addition of new matter, and does not enlarge or alter the scope of claims substantially.

(4) Regarding Correction D

Correction D, which is to delete a part of claim cited in response to Correction B, is intended for restriction of the scope of claims. Thus, Correction D does not fall under addition of new matter, and does not enlarge or alter the scope of claims substantially.

(5) Regarding Correction E

Correction E, which is to add a limitation matter, regarding "the visible pattern" before the correction, "contains a signature (424) that can be verified locally by a device connected to the 2D barcode reader to check authenticity of the 2D barcode", is intended for restriction of the scope of claims. Claim 17 before the correction includes the recitation, "the visible pattern contains a signature (424) that can be verified locally by a device connected to the 2D barcode reader to check authenticity of the 2D barcode". Thus, Correction E does not fall under addition of new matter, and does not enlarge or alter the scope of claims substantially.

(6) Regarding Correction F

Correction F, which is to delete Claim 17, is intended for restriction of the scope of claims. Thus, Correction F does not fall under addition of new matter, and does not enlarge or alter the scope of claims substantially.

(7) Regarding Correction G

Correction G, which is to delete a part of claim cited in response to Correction F, is intended for restriction of the scope of claims. Thus, Correction G does not fall under addition of new matter, and does not enlarge or alter the scope of claims substantially.

(8) Regarding Correction H

Correction H, which is to delete a part of claim cited in response to Correction F, is intended for restriction of the scope of claims. Thus, Correction H does not fall under addition of new matter, and does not enlarge or alter the scope of claims substantially.

(9) Regarding Correction I

Correction I is to cite Claim 9 after the correction in place of Claim 17 before the correction in response to Correction F.

Claim 9 after the correction is limited with the contents of Claim 17 before the correction by Correction E. Thus, Correction I is intended for restriction of the scope of claims, does not fall under addition of new matter, and does not enlarge or alter the scope of claims substantially.

(10) Regarding Correction J

Correction J, which is to delete a part of claim cited in response to Correction F, is intended for restriction of the scope of claims. Thus, Correction J does not fall under addition of new matter, and does not enlarge or alter the scope of claims substantially.

(11) Regarding Correction K

Correction K, which is to dissolve citation relation with Claim 1 and to delete a part of claim cited in response to Correction F, is intended for dissolution of citation relation and restriction of the scope of claims. Thus, Correction K does not fall under addition of new matter, and does not enlarge or alter the scope of claims substantially.

(12) Regarding Correction L

Correction L, which is to dissolve citation relation with Claim 1, is intended for dissolution of citation relation. Thus, Correction L does not fall under addition of new matter, and does not enlarge or alter the scope of claims substantially.

(13) Regarding Correction M

Correction M, which is to dissolve citation relation with Claim 1, is intended for dissolution of citation relation. Thus, Correction M does not fall under addition of new matter, and does not enlarge or alter the scope of claims substantially.



### 3 Summary

As described above, the correction made by the Demand for Correction is intended for the matters stipulated in Article 120-5(2)(i) and (iii) and falls under the provisions of Article 126(5) and (6) of the Patent Act which is applied mutatis mutandis in the provisions of Article 120(9) of the Patent Act.

Therefore, the correction of the scope of claims shall be approved according to the corrected scope of claims attached to the written demand for correction, regarding Claims [1-8], [9-25], and [26-33] after the correction.

#### No. 3 The Invention after the correction

The inventions according to Claims 1 to 33 corrected by the Demand for Correction (hereinafter referred to as "Invention 1" to "Invention 33", respectively) are as specified by the following matters recited in Claims 1 to 33 of the corrected scope of claims (the underlines were added by the Patentee).

"[Claim 1]

A method for creating a 2D barcode (100; 200; 300; 400; 500; 600) comprising:

embedding primary information that can be read by a 2D barcode reader in a primary information pattern (110; 210; 310; 410; 510; 610); and

embedding secondary information in a visible pattern (120; 220; 320; 420; 520; 620) embedded within said 2D barcode, in at least one area that does not contain any primary information such that the secondary information is separated from the primary information, wherein

said secondary information in a visible pattern is formed by light and dark elementary sub-cells having a largest dimension smaller than 50  $\mu\text{m}$  configured to be difficult to reproduce without alteration,

said secondary information is generated using a secret key such that the visible pattern contains a secret (426), and

the visible pattern (420) contains a signature (424) that can be verified locally by a device connected to the 2D barcode reader to check authenticity of the 2D barcode (400).

[Claim 2]

The method of Claim 1, wherein

the visible pattern (120; 220; 320; 420) is embedded in the 2D barcode in one sole area.

[Claim 3]

The method of any one of Claims 1 or 2, wherein the secondary information is formed by black and white elementary sub-cells (122) and has an average black density different from  $50\% \pm 5\%$  of black elementary sub-cells (122).

[Claim 4]

The method of any of Claims 1 to 3, wherein the secondary information is entirely located in at least two different portions (120a, 120b, 320a, 320b1 to 320b4) of the visible pattern (120; 320), at least one portion having an average black density different from  $50\% \pm 5\%$  of black elementary sub-cells.

[Claim 5]

The method of Claim 3 or 4, wherein the average black density is less than or equal to  $45\%$  and/or more than or equal to  $55\%$  of black elementary sub-cells (122).

[Claim 6] (Deleted)

[Claim 7]

A method for creating a 2D barcode (100; 200; 300; 400; 500; 600) comprising:  
embedding primary information that can be read by a 2D barcode reader in a primary information pattern (110; 210; 310; 410; 510; 610); and  
embedding secondary information in a visible pattern (120; 220; 320; 420; 520; 620) embedded within said 2D barcode, in at least one area that does not contain any primary information, such that the secondary information is separated from the primary information, wherein  
said secondary information in a visible pattern is formed by light and dark elementary sub-cells having a largest dimension smaller than  $50 \mu\text{m}$  configured to be difficult to reproduce without alteration,  
said secondary information is generated using a secret key such that the visible pattern contains a secret (426), and  
the authenticity of the secret in the visible pattern (420) can be verified only by using a remote device (30).

[Claim 8]

The method of any one of Claims 1 to 5, and 7, wherein the secret key (K2) is randomly or pseudo-randomly generated.

[Claim 9]

A product embedding a 2D barcode (100; 200; 300; 400; 500; 600) comprising a primary information pattern (110; 210; 310; 410; 510; 610) representing primary information that can be read by a 2D barcode reader and a visible pattern (120; 220; 320; 420; 520; 620) representing secondary information that is made difficult to reproduce without alteration,

characterized in that the visible pattern (120; 220; 320; 420; 520; 620) is embedded within said 2D barcode in at least one area that does not contain any primary information,

said visible pattern formed by light and dark elementary sub-cells having a largest dimension smaller than 50  $\mu\text{m}$  generated using a secret key so that the visible pattern contains a secret (426), and

said visible pattern (420) contains a signature (424) that can be verified locally by a device connected to the 2D barcode reader to check authenticity of the 2D barcode.

[Claim 10]

The product according to Claim 9, wherein

the 2D barcode includes a modified QR code or Data matrix in the form of a symbol forming a data area, the data area comprising position detection patterns located at three corners of the symbol, primary information represented by a primary information pattern (110; 210; 310; 410; 510; 610) and secondary information represented by a visible pattern (120; 220; 320; 420; 520; 620).

[Claim 11]

The product according to Claim 9 or 10, wherein

the visible pattern is wholly contained in a rectangle with only secondary information.

[Claim 12]

The product according to any of Claims 9 to 11, wherein

the visible pattern is formed in a 7 x 7 pixels or a 8 x 8 or a 9 x 9 elementary cell zone or in a 10 x 10 elementary cell zone.

[Claim 13]

The product according to Claim 10, wherein

the QR code is a 29 x 29 elementary cells type QR code or a 33 x 33 elementary cells type QR code.

[Claim 14]

The product according to any of Claims 9 to 13, wherein

the visible pattern is located inside the limit of the primary information pattern.

[Claim 15]

The product according to any of Claims 9 to 14, wherein the visible pattern overlaps the center of the primary information pattern.

[Claim 16]

The product according to any of Claims 9 to 13 wherein the visible pattern (520; 620) is located outside the limit of the primary information pattern.

[Claim 17] (Deleted)

[Claim 18]

The product according to any of Claims 9 to 16, wherein the authenticity of the secret in the visible pattern can be verified only by using a remote device (30).

[Claim 19]

The product according to any of Claims 9 to 16, and 18, wherein the secret key (K2) is randomly or pseudo-randomly generated.

[Claim 20]

A method of authenticating a 2D barcode on a product including characteristics of the product according to Claim 9, comprising:

reading, with a 2D barcode reader said 2D barcode;

identifying said visible pattern and identifying within said secondary information said signature thereby forming a detected signature;

comparing the detected signature to a signature key and determining, as a result of the comparison, a signature similarity score;

comparing the signature similarity score to a predetermined signature threshold;

establishing an authentication signature result being success if the result is equal to or more than said predetermined signature threshold or being failure if the result is less than the predetermined signature threshold.

[Claim 21]

The method of according to Claim 20, wherein

the 2D barcode reader is part of a mobile device (20), and

the signature key is stored on the mobile device (20) which implements the comparison step between the detected signature and the signature key.

[Claim 22]

The method of authenticating a 2D barcode on a product including characteristics of the product according to any of Claims 18 to 19, comprising:

a step of reading, with a 2D barcode reader, the 2D barcode;

a step of identifying the visible pattern and identifying the signature in the secondary information thereby forming a detected signature;

a step of comparing the detected signature to a signature key of a source 2D barcode and determining, as a result of the comparison, a signature similarity score;

a step of comparing the signature similarity score to a predetermined signature threshold;

a step of establishing an authentication signature result being success if the result is equal to or more than the predetermined signature threshold or being failure if the result is less than the predetermined signature threshold.

[Claim 23]

The method according to Claim 22, wherein

the 2D barcode reader is part of a mobile device (20) connected to a remote device (30), wherein

the secret key of the source 2D barcode is stored on the remote device (30) which implements the comparison step between the detected secret and the secret key, and

the method further comprises a step of sending back the authentication secret result to the mobile device (20).

[Claim 24]

The method of manufacturing a product including characteristics of the product according to any of Claims 9 to 16, 18, and 19 comprising

preparing a product;

creating a source 2D barcode, in the method for creating a 2D barcode (100; 200; 300; 400; 500; 600) comprising:

embedding primary information that can be read by a 2D barcode reader in a primary information pattern (110; 210; 310; 410; 510; 610); and

embedding secondary information in a visible pattern (120; 220; 320; 420; 520; 620) embedded within said 2D barcode in at least one area that does not contain any primary information such that the secondary information is separated from the primary information, wherein

said secondary information in a visible pattern is formed by light and dark elementary sub-cells having a largest dimension smaller than 50  $\mu\text{m}$  configured to be difficult to reproduce without alteration, and

said second information is generated using a secret key such that the visible pattern contains a secret (426); and

printing the source 2D barcode on the product, thereby creating a product with

an original 2D barcode.

[Claim 25]

The method according to Claim 24, wherein  
the printing step comprises the following two sub-steps for printing the source  
2D barcode on the product:

using first printing means for printing the primary information pattern containing  
primary information, and

using second printing means for printing the visible pattern containing secondary  
information, thereby creating a product with an original 2D barcode.

[Claim 26]

A method for creating a 2D barcode (100; 200; 300; 400; 500; 600)

comprising:

embedding primary information that can be read by a 2D barcode reader in a  
primary information pattern (110; 210; 310; 410; 510; 610); and

embedding secondary information in a visible pattern (120; 220; 320; 420; 520;  
620) embedded within said 2D barcode in at least one area that does not contain any  
primary information such that the secondary information is separated from the primary  
information, wherein

said secondary information in a visible pattern is formed by light and dark  
elementary sub-cells having a largest dimension smaller than 50  $\mu\text{m}$  configured to be  
difficult to reproduce without alteration,

said secondary information is generated using a secret key such that the visible  
pattern contains a secret (426), wherein

said secondary information is first printed with offset printing and then primary  
information is printed with inkjet printing.

[Claim 27]

The method of authenticating a 2D barcode comprising the features of a 2D  
barcode created according to

a method for creating a 2D barcode (100; 200; 300; 400; 500; 600)

comprising:

a step of embedding primary information that can be read by a 2D barcode reader  
in a primary information pattern (110; 210; 310; 410; 510; 610); and

a step of embedding secondary information in a visible pattern (120; 220; 320;  
420; 520; 620) embedded, in the 2D barcode, in at least one area that does not contain  
any primary information such that the secondary information is separated from the  
primary information, wherein

the secondary information in a visible pattern is formed by light and dark elementary sub-cells having a largest dimension smaller than 50  $\mu\text{m}$  configured to be difficult to reproduce without alteration,

the secondary information is generated using a secret key such that the visible pattern contains a secret (426), comprising:

scanning the 2D barcode using a local device to generate at least one image frame;

reading from the image frame primary information in the local device;

extracting from the image frame secondary information in the local device, generating a portion of secondary information using a key stored in the local device, the portion comprising or forming a signature of the secondary information, and

comparing the signature of the secondary information with the extracted secondary information to verify the authenticity at a first local level of the 2D barcode.

[Claim 28]

The method according to Claim 27, further comprising:

sending the primary information or information correlated thereto, and an image of the extracted secondary information, to a remote server; and

authenticating 2D barcode by comparing the image of the extracted secondary information with an original 2D barcode image stored or generated in the remote server.

[Claim 29]

The method according to Claim 27 or 28, wherein

the comparison of the signature of the secondary information with the extracted secondary information generates a score.

[Claim 30]

The method according to any of Claims 27 to 29, wherein

the scanning of the 2D barcode using the local device generates a plurality of images frames, resulting in a plurality of scores,

the plurality of scores being used to determine if a second level authentication by a remote server is to be performed.

[Claim 31]

The method according to Claim 28, comprising

verifying image quality of the at least one image frame to determine whether the image is suitable for authentication of the 2D barcode by a remote server.

[Claim 32]

The method according to Claim 31, wherein

a technique for verifying image quality includes:

extracting, from the image frame, secondary information in the local device;  
generating a portion of secondary information using a key stored in the local device, the portion comprising or forming a signature of the secondary information;  
comparing the signature of the secondary information with the extracted secondary information to generate a score; and  
using set of scores as an indicator of image quality.

[Claim 33]

The method according to Claim 32, wherein  
a technique for verifying image quality includes measuring sharpness of transition between black and white cells of primary information."

No. 4 Regarding Reasons for rescission stated in the notice of reasons for rescission

#### 1 Outline of Reasons for rescission

The outline of the notice of reasons for rescission issued by the body on August 21, 2020 to the Patentee, regarding the patent according to Claims 1 to 5 before the correction, the patent according to Claim 8, and the patent according to Claim 9, is as follows.

The inventions according to Claims 1 to 2, 8, and 9 are identical with the invention described in Evidence A No. 7. The Patent according to Claims 1 to 2, 8, and 9 was granted in violation of Article 29(1)(iii) of the Patent Act, and should be revoked.

The inventions according to Claims 1 to 5, the invention according to Claim 8, and the invention according to Claim 9 could have been easily made by a person skilled in the art on the basis of the invention described in Evidence A No. 7. The patent according to Claims 1 to 5, the patent according to Claim 8, and the patent according to Claim 9 were granted in violation of Article 29(2) of the Patent Act, and they should be revoked.

#### 2 Description of Evidence A

##### (1) Matters described in Evidence A No. 7 and Cited Invention

Evidence A No. 7 (National Publication of International Patent Application No. 2010-529531) describes the following matters.



A "[0001]

This invention concerns a method and a device for securing documents. It envisages, in particular, identifying a document in a unique way, authenticating it; i.e., being able to detect its copying and/or carrying, on the document, information relative to this document, for example, information identifying an owner of intellectual property rights connected to the document and/or its place of manufacture. The term document includes all data carriers, for example hardcopy documents, blueprints, packaging, manufactured items, molded items and cards, e.g., identification cards or bankcards."

B "[0045]

Before giving the details of the various particular embodiments of this invention, the definitions that will be used in the description are given below.

-'information matrix': this is a machine-readable physical representation of a message, generally affixed on a solid surface (unlike watermarks or digital watermarks, which modify the values of the pixels of a design to be printed). The information matrix definition encompasses, for example, 2D bar codes, one-dimensional bar codes, and other, less intrusive means for representing information, such as 'Dataglyphs' (data marking); (Omitted) – 'Cell': this is a regular area, generally rectangular or even square, of a variable characteristic dot pattern ('VCDP') in which there is, at most, a pre-defined number of dots, the pre-defined number generally being equal to one, except in indicated variants. (Omitted)"

C "[0134]

In addition, the inventors have discovered that, in certain embodiments, in order to make a document secure against copies causing, as a result of unanticipated unknowns in copying, a so-called unpredictable 'copy' variation, dot by dot, of the geometric characteristic of the printed dots, it is preferable that when printing a distribution of dots on the document, the printing causes, as a result of unanticipated unknowns in printing, a so-called unpredictable 'print' variation, dot by dot, of the geometric characteristic of the printed dots, the average magnitude of the unpredictable print variation being of the same order of magnitude as the average minimum magnitude of the unpredictable variation of the copies. For preference, you then perform a step of determining a physical magnitude representing the unpredictable print variation, as described elsewhere with reference to the functions of authenticating and identifying a document. [0135]

For example, you can use a VCDP of 200×200 pixels printed at 1200 dots per

inch, for a printed surface area of 1/6 inch, the 'dots' of which measure 2×2 generation pixels when the average of the absolute value of the unpredictable variation is between 0.2 pixels and 20 pixels. Note that a VCDP of 100×100 pixels printed at 600 dots per inch, with dots of 1×1 pixel, may give a comparable result. Nevertheless, a higher image resolution (for the same size of printed area) allows more flexibility in varying the size and/or the position of the dots, as detailed below."

D "[0137]

For security reasons, it is desirable that the VCDP is of a pseudo-random nature, for example, generated from a cryptographic algorithm to which a key is supplied that is kept secret. This key is used as the initialization value of an algorithm generating pseudo-random numbers, which can be retrieved by anyone whatsoever who knows the key, but which are very difficult to find for anyone who does not have the key."

E "[0163]

In order to store information in the VCDP, you can, for example, define two possible shapes, two positions or two dimensions for each of the dots, inside the cell assigned to it, so as to store one bit per area. A bit value ('0' or '1') is assigned to each position, dimension, or shape."

F "[0168]

With respect to integration with other digital authentication codes, the VCDPs can be integrated with digital authentication codes so as to offer an additional layer of protection and/or an unobtrusive means of tracking documents. FIG. 8 shows a secured information matrix 155, which comprises, in its center, an area in which a VCDP 156 is inserted. FIG. 9 shows a secured information matrix 160, which is surrounded by a VCDP 161. It is noted that, in this latter case, the elements allowing the digital authentication code 160 to be located, for example, its corners, can be used to locate and determine the approximate positions of the dots of VCDP 161."

G "

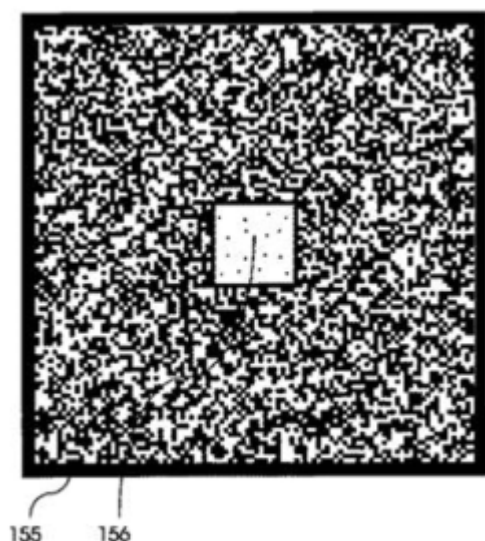


Figure 8

FIG. 8"

H From FIG. 8 which shows a secured information matrix comprising, in its center, a VCDP, we find an aspect of "embedding a VCDP 156 formed of dark and light dot patterns in one sole area in an information matrix 155 so that the VCDP 156 is separated from the information matrix 155".

In light of the above, it is recognized that Evidence A No. 7 discloses the following invention (hereinafter referred to as "Cited Invention").

"A method for securing documents, wherein

the method is implemented by embedding a VCDP in one sole area in an information matrix so that the VCDP is separated from the information matrix,

the information matrix is a machine-readable physical representation of a message, for example, 2D bar codes,

the VCDP is configured so that, in order to make a document secure against copies, when printing a distribution of dots on the document, the printing causes, as a result of unanticipated unknowns in printing, a so-called unpredictable 'print' variation, dot by dot, of the geometric characteristic of the printed dots, the average magnitude of the unpredictable print variation being of the same order of magnitude as the average minimum magnitude of the unpredictable variation of the copies, and the VCDP is formed of dark and light dot patterns at 1200 dots per inch or 600 dots per inch, the VCDP stores information,

for security reasons, the VCDP is of a pseudo-random nature, generated from a cryptographic algorithm to which a key is supplied that is kept secret."

### 3 Judgment by the body

(1) Regarding Article 29(1)(iii) of the Patent Act (Reason 1) and Article 29(2) of the Patent Act (Reason 2)

#### A Regarding Invention 1

##### (A) Comparison

Invention 1 and the Cited Invention are compared below.

a The "2D bar code" in the Cited Invention corresponds to the "2D barcode" in Invention 1. The "2D bar code" in the Cited Invention can be read by a 2D barcode reader, obviously.

The "information matrix" in the Cited Invention, which is "a machine-readable physical representation of a message, for example, 2D bar codes", corresponds to the "primary information pattern" in Invention 1. Information represented by the "2D bar codes" in the Cited Invention is considered to correspond to the "primary information" "embedded in the primary information pattern (110; 210; 310; 410; 510; 610)" in Invention 1. Thus, it can be said that the Cited Invention and Invention 1 are identical in including "embedding primary information that can be read by a 2D barcode reader in a primary information pattern".

b Regarding the "method for securing document" in the Cited Invention, which is implemented by embedding a VCDP in one sole area in an information matrix so that the VCDP is separated from the information matrix, according to the recognized matter in a, the "one sole area in an information matrix" corresponds to "within said 2D barcode in at least one area that does not contain any primary information" in Invention 1.

The "VCDP" in the Cited Invention, "which is formed of dark and light dot patterns at 1200 dots per inch or 600 dots per inch, the VCDP storing information", corresponds to the "visible pattern" in Invention 1. The "information" "stored" in the "VCDP" is considered to correspond to the "secondary information" in Invention 1. The "VCDP" is separated from the "information matrix". Considering the above, it

can be said that the Cited Invention and Invention 1 are identical in including "embedding secondary information in a visible pattern embedded within said 2D barcode, in at least one area that does not contain any primary information such that the secondary information is separated from the primary information".

c The "VCDP" in the Cited Invention, which is "formed of dark and light dot patterns at 1200 dots per inch or 600 dots per inch", is considered to be formed of dots of 21.2  $\mu\text{m}$  (1200 dots per inch) or 42.3  $\mu\text{m}$  (600 dots per inch). Thus, the VCDP is identical in dimension with "the secondary information in a visible pattern" which is "formed by light and dark elementary sub-cells having a largest dimension smaller than 50  $\mu\text{m}$ " in Invention 1.

The "VCDP", which is "configured so that, in order to make a document secure against copies, when printing a distribution of dots on the document, the printing causes, as a result of unanticipated unknowns in printing, a so-called unpredictable 'print' variation, dot by dot, of the geometric characteristic of the printed dots, the average magnitude of the unpredictable print variation being of the same order of magnitude as the average minimum magnitude of the unpredictable variation of the copies", is considered to be identical with Invention 1 in being "configured to be difficult to reproduce without alteration". Considering the above, it can be said that the Cited Invention and Invention 1 are identical in that "said secondary information in a visible pattern is formed by light and dark elementary sub-cells having a largest dimension smaller than 50  $\mu\text{m}$  configured to be difficult to reproduce without alteration".

d The "VCDP" in the Cited Invention is "for security reasons, ... (omitted) ... of a pseudo-random nature, generated from a cryptographic algorithm to which a key is supplied that is kept secret". The "key that is kept secret" corresponds to the "secret key" in Invention 1. The "pseudo-random nature, generated from a cryptographic algorithm" is considered to be identical with Invention 1 in that the "secondary information" is "generated using a secret key so that the visible pattern contains a secret (426)". Thus, the Cited Invention and Invention 1 are identical in that "said secondary information is generated by using a secret key so that the visible pattern contains a secret (426)".

e Accordingly, in light of the above examined in a to d, Invention 1 and the Cited Invention have the following corresponding feature and different features.

<Corresponding Feature>

A method comprising:

embedding primary information that can be read by a 2D barcode reader in a primary information pattern; and

embedding secondary information in a visible pattern embedded within said 2D barcode in at least one area that does not contain any primary information such that the secondary information is separated from the primary information, wherein

said secondary information in a visible pattern is formed by light and dark elementary sub-cells having a largest dimension smaller than 50 µm configured to be difficult to reproduce without alteration, and

said secondary information is generated using a secret key such that the visible pattern contains a secret.

<Different Feature 1>

The method of Invention 1 is "a method for creating a 2D barcode (100; 200; 300; 400; 500; 600)". The method of the Cited Invention is "a method for securing documents".

<Different Feature 2>

The "visible pattern" in Invention 1 "contains a signature (424) that can be verified locally by a device connected to the 2D barcode reader to check authenticity of the 2D barcode (400)". The "VCDP" in the Cited Invention is "of a pseudo-random nature, generated from a cryptographic algorithm to which a key is supplied that is kept secret".

(B) Judgment

a Regarding Article 29(1)(iii) of the Patent Act

Invention 1 and the Cited Invention are different in the above Different Features 1 and 2. Thus, it cannot be said that Invention 1 is identical with the invention described in Evidence A No. 7 (Cited Invention).

b Regarding Article 29(2) of the Patent Act

In view of the case, the Different Features are examined first.

Evidence A No. 7 does not any description or indication about "a signature that can be verified locally by a device connected to the 2D barcode reader". Invention 1,

with this configuration, has the following advantageous effect specific to Invention 1: "to give an indication about the presence of the right signature or a wrong signature on the 2D barcode, thereby giving an indication about the original character or the non-original character (copy) of the 2D barcode. For instance, a pseudo randomly generated first key KI (or 'signature key') is used for all 2D barcodes and is present in or available to the mobile device. The reconstitution of source signature is made preferably using first key KI and part of a 2D code message; i.e., primary information, (for instance unique ID present as portion of the primary information pattern) through a first algorithm present in the mobile device. Therefore, the first security level authentication check is implemented by comparison between signature of the 2D barcode to be checked and the source signature (the 'comparison' being for example an image similarity calculation producing a score and a comparison of that score to a threshold). The first security authentication check can be advantageous when the authentication device is not connected to the Internet. Another significant advantage of the signature is the possibility to verify locally whether the scan has appropriate image quality by performing measurement on the signature. For example, if for consecutive frames the measurement is stable and consistent, this can be an indication that those frames are usable for authentication and can be sent to a remote server for full authentication." ([0039])

It cannot be said that the configuration relating to Different Feature 2 that the "visible pattern" "contains a signature (424) that can be verified locally by a device connected to the 2D barcode reader to check authenticity of the 2D barcode (400)" had been well-known before the filing of the patent application. Thus, it cannot be said that Invention 1 could have been easily made by a person skilled in the art on the basis of the invention described in Evidence A No. 7, without examining the above Different Feature 1.

### (C) Summary

Therefore, Invention 1 is not identical with the invention described in Evidence A No. 7, and it cannot be said that Invention 1 could have been easily made by a person skilled in the art on the basis of the matters described in Evidence A No. 7.

### B Regarding Inventions 2 to 5, and 8

Inventions 2 to 5, and 8, which are further restrictions of Invention 1, are not identical with the invention described in Evidence A No. 7 for the same reasons as for Invention 1. It cannot be said that Inventions 2 to 5, and 8 could have been easily

made by a person skilled in the art on the basis of the matters described in Evidence A No. 7.

#### C Regarding Invention 9

Invention 9 is different from Invention 1 in general category expression. Invention 9 is not identical with the invention described in Evidence A No. 7 for the same reasons as for Invention 1. It cannot be said that Invention 9 could have been easily made by a person skilled in the art on the basis of the matters described in Evidence A No. 7.

#### D Summary

According to the above judgment, Inventions 1 to 5, 8 and 9 are not identical with the invention described in Evidence A No. 7. It cannot be said that they could have been easily made by a person skilled in the art on the basis of the matters described in Evidence A No. 7.

#### (2) Summary

Therefore, Inventions 1 to 5, 8, and 9 are not identical with the invention described in Evidence A No. 7 and it cannot be said that the inventions could have been easily made by a person skilled in the art on the basis of the invention described in Evidence A No. 7. Thus, Inventions 1 to 5, 8 and 9 cannot be revoked by the notice of reasons for rescission dated August 21, 2020.

No. 5 Regarding reasons for opposition to the grant of a patent that have not been adopted in the notice of reasons for rescission

#### 1 Regarding Article 29(1)(iii) and Article 29(2) of the Patent Act (Reason 1)

##### (1) Regarding Invention 1

The Opponent alleges as follows in the written opposition to the grant of a patent: The patent of the invention according to Claim 1 of the scope of claims before the correction should be revoked under the provisions of Article 29(1)(iii) of the Patent Act since the invention is identical with inventions described in Evidence A No. 1 to Evidence A No. 4 and Evidence A No. 7 to Evidence A No. 9; The patent of the above invention should be revoked under the provisions of Article 29(2) of the Patent Act since the invention could have been easily made by a person skilled in the art on the



basis of the inventions described in Evidence A No. 1 to Evidence A No. 4 and Evidence A No. 7 to Evidence A No. 9.

However, as indicated in No. 4 3 (1), Invention 1 is not identical with the invention described in Evidence A No. 7, and cannot be an invention which could have been easily made by a person skilled in the art on the basis of the invention described in Evidence A No. 7.

Evidence A No. 1 to Evidence A No. 4 and Evidence A No. 8 to Evidence A No. 9 do not disclose the matter in Invention 1, "the visible pattern (420) contains a signature (424) that can be verified locally by a device connected to the 2D barcode reader to check authenticity of the 2D barcode (400)". Thus, the identity between them cannot be recognized due to this difference at least. In addition, it cannot be said that Invention 1 could have been easily made by a person skilled in the art on the basis of Evidence A No. 4 and Evidence A No. 8 to Evidence A No. 9, which do not disclose the above matter.

Therefore, the patent according to Claim 1 cannot be revoked by the reasons alleged by the Opponent.

(2) Regarding Inventions 2 to 5, and 8

The Inventions 2 to 5, and 8 are further restrictions of Invention 1. Thus, the patent according to Claims 2 to 5, and 8 cannot be revoked by the reasons alleged by the Opponent for the same reasons as those indicated in (1).

(3) Regarding Invention 7

The Opponent alleges as follows in the written opposition to the grant of a patent: The patent of the invention according to Claim 1 of the scope of claims before the correction should be revoked under the provisions of Article 29(1)(iii) of the Patent Act since the invention is identical with inventions described in Evidence A No. 3, Evidence A No. 4 and Evidence A No. 7; The patent of the above invention should be revoked under the provisions of Article 29(2) of the Patent Act since the invention could have been easily made by a person skilled in the art on the basis of the inventions described in Evidence A No. 3, Evidence A No. 4, and Evidence A No. 7.

The matters described in Evidence A No. 3 and Evidence A No. 4 are examined below.

A Matters described in Evidence A No. 3

Evidence A No. 3 (Japanese Unexamined Patent Application Publication No.

2003-291535) describes the following matters.

A "[0001]

[Field of the Invention] This invention relates to a method for forming characters and graphics on a printed ink surface by laser marking.

[0002]

[Conventional Art] In general, barcodes formed by printing stripes on a package of a commodity, for management of commodities or calculation of sales. However, the amount of data to be recorded on the barcodes using stripes is small as compared with the area occupied, and the barcodes were used only for managing commodity number of products.

[0003] Recently, two-dimensional codes formed by dark and light dot matrix patterns have been used. In the code, 12 alphabetic characters can be recorded per 1 mm, and the amount of data per unit area is huge as compared with barcodes, thus a huge amount of information can be recorded, and data can be read by a reader from anywhere in 360 degrees. Even when a part of a code is damaged or contaminated, data can be restored, and information can be managed secretly by encrypting data. Thus, the two-dimensional codes are used for various purposes."

B "[0017] FIG. 4 illustrates another embodiment of the invention, which sublimates an ink film 6 by irradiating a surface 4 of a share certificate 9 with an anti-forgery mark printed thereon with a laser beam to form a two-dimensional code 1 having a dark and light pattern with a white part where a paper sheet 5 is exposed and the ink film 6. In this method, the ink film 6 is sublimated by instantaneously irradiating the dried ink film 6 with a laser beam, thereby forming a fine two-dimensional code 1 without ink bleed, and embedding encrypted information in the two-dimensional code 1, resulting in improving security and preventing forgery.

[0018] This invention can record ten or more characters in a two-dimensional code having a small area of 1-mm square. A cell 2 having a dark and white pattern cannot be reproduced even by copying with a copier or a scanner of a personal computer, by embedding a minute two-dimensional code 1 in a character or a pattern printed on cards, such as bank card, credit card, or prepaid card, valuable securities, such as shopping vouchers, checks, and drafts, or paper money, and the copied information cannot be identified by a reader, thereby verifying authenticity and preventing forgery.

... (Omitted) ...

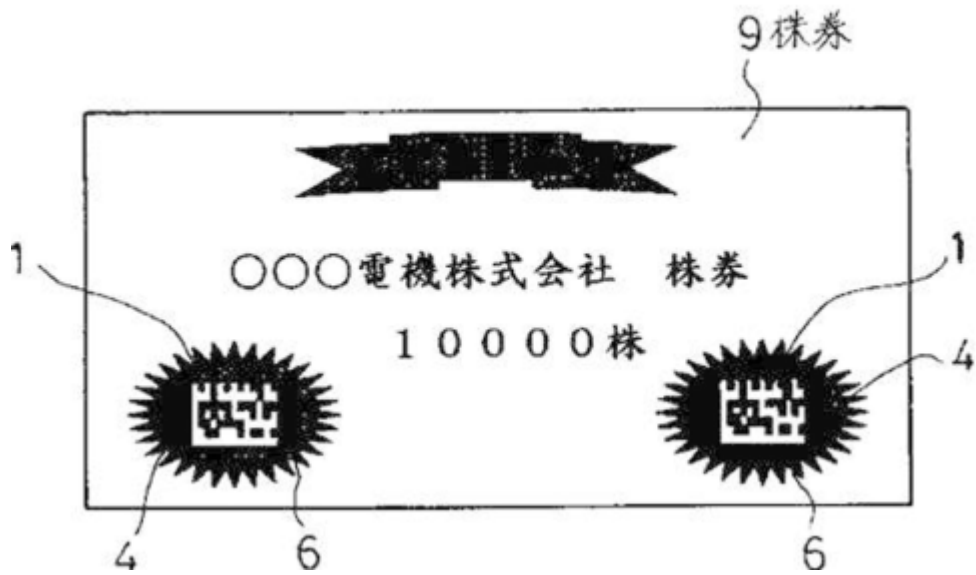
[0020] A two-dimensional code 1 formed by offset printing or by an inkjet printer has a large area of a unit cell 2 which is easily copied or created. In this invention, after forming an ink film 6, the ink film 6 is partially removed or discolored by laser beam irradiation to form a minute two-dimensional code 1 having a unit cell 2 with a side of about 10 to 50  $\mu\text{m}$ , which cannot be reproduced by copying, resulting in significant improvement in security."

C "[0024] The above description presents an example of forming a two-dimensional code 1 on an ink film 6. As shown in FIG. 7, on a surface of a transparent plastic bag 10, a belt-like printing surface 4 is formed using black ink, on which a laser beam is momentarily radiated to form numbers 11, a barcode 12, or a deformed barcode 12A with inclined bars. Data recorded can be changed in accordance with information on the contents, as well.

... (Omitted) ...

[0032] In this way, the tablet package 21 is irradiated with a laser beam to form a two-dimensional barcode, and the kind of the tablets 20 can be confirmed by a reader reading the two-dimensional barcode formed on the tablet package 21 when dispensing medicine at a pharmacy. A large amount of information, such as medicine name, name of manufacturer, production number, and manufacturing date can be recorded for each tablet 20. Giving of wrong medication can be prevented and inventory management is facilitated, accordingly."

D "



OOO電機株式会社 株券  
 10000株 10,000 shares  
 9 株券 9 Certificate

xxx Electric Company, Co., Ltd. Certificate

FIG. 4"

E "

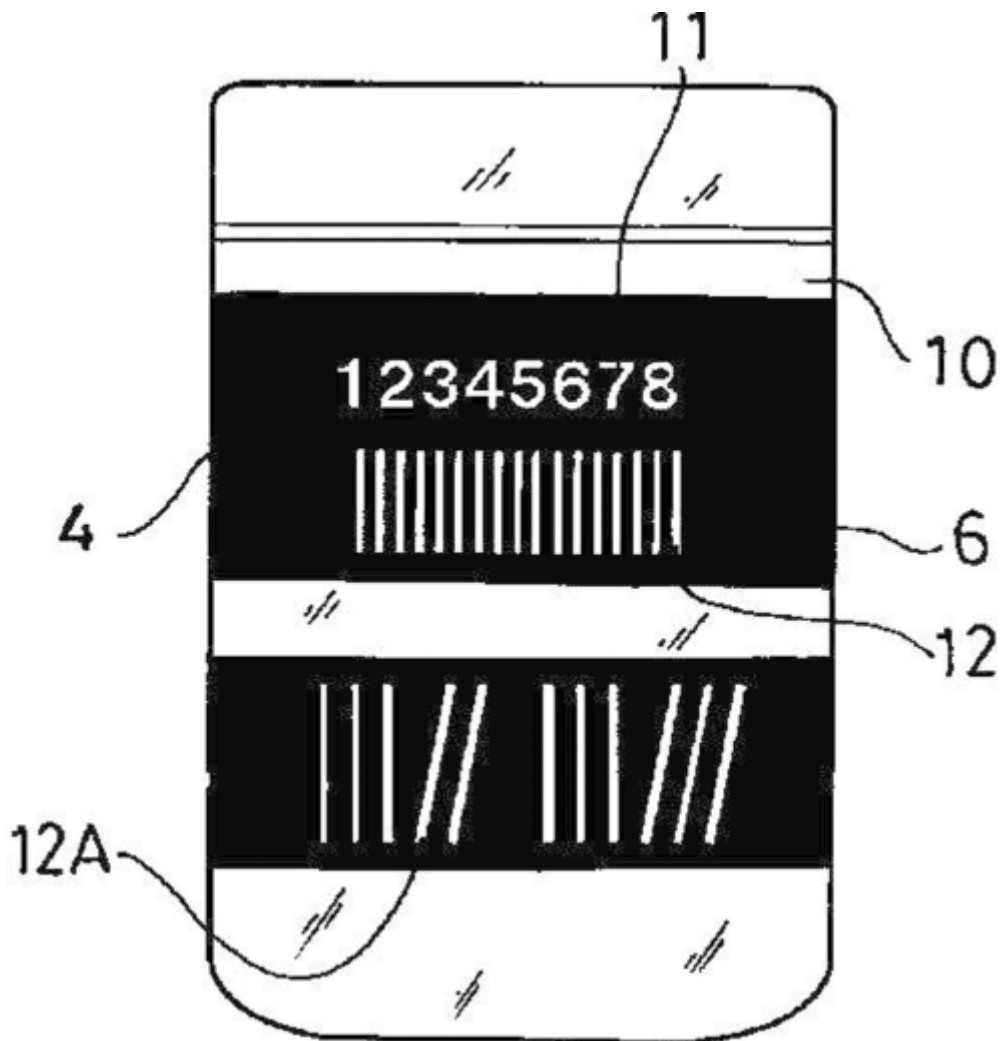


FIG. 7"

B Matters described in Evidence A No. 4

Evidence A No. 4 (Japanese Unexamined Patent Application Publication No. 2008-234643) describes the following matters.

F "[Problem to be solved by the invention]

[0004]

However, such barcode systems are often unable to preserve the entire image of a document. That is, existing barcode systems may have insufficient capacity to store the amount of barcode data necessary to substantially reproduce an original document image within feasible data parameters. Those systems that are capable of substantially reproducing a document from a barcode typically suffer from the consequences of large file sizes. Therefore, they may involve drawbacks such as unduly burdensome data

storage requirements, slow file transfer, and other related disadvantages.

[0005]

Accordingly, there is a need for improved transmission of sensitive documents wherein document image data can be safely stored in an encrypted barcode prior to transmission. There is also a need for a system and method of associating barcodes with documents such that the barcodes may encode enough information within a relatively small barcode to create a complete reproduction of the document. There is also a need to decrease the overall file size of a document and associated barcode while still providing, if desired, at least a reduced file size reproduction of the original document image.

... (Omitted) ...

[0008]

In accordance with one exemplary embodiment, a system for processing image data is disclosed including: an image-obtaining component that receives original image data from an original image; a storage component that stores a program of instructions including instructions for generating barcode data for a two-dimensional barcode that encodes the original image data such that the original image can be reproduced from the two-dimensional barcode; a processor that processes the original image data; a barcode-producing component that produces the two-dimensional barcode based on the original image data; and a document-producing component that produces a document including the two-dimensional barcode and a reproduction of the original image, wherein the reproduction is represented by a smaller amount of data than the original image, whereby the document has a reduced file size.

G "[0019]

FIG. 2 is a flowchart illustrating exemplary processing steps for processing image data of documents and associated barcodes. An original image 202 may first be received by any of various methods. In one embodiment, an original image is obtained via a scanner. In this implementation, a hardcopy paper item may be scanned into a digital image format for transmission to a personal computer. Alternatively, an original image may be obtained as a digital image of a document as transmitted over a network such as a telephony-based network, a local area network (LAN), a wide area network (WAN), a wireless network, an intranet, the Internet, or any other communication means. In a further embodiment, a digital image of a document is

received as an attachment to an email. An original image may also be obtained from locally-connected media such as a floppy disk, CD-ROM, DVD, USB drive, or any other data storage means."

H "[0042]

Specifically, in a further embodiment, a barcode of 5 pixels by 5 pixels at 300 DPI, wherein the tile size is 400  $\mu\text{m}$  x 400  $\mu\text{m}$  and a pixel is 80  $\mu\text{m}$  across, may be increased in resolution to 600 DPI. In this implementation, the higher resolution barcode may have a smaller area (i.e., footprint) with a tile size of 200  $\mu\text{m}$  x 200  $\mu\text{m}$  because each pixel is now 40  $\mu\text{m}$  across. Because this higher resolution stores more data per unit of area, the barcode of reduced area may provide substantially equivalent or increased capacity.

[0043]

Various two-dimensional barcodes may be incorporated in and are contemplated for use in the present invention. Many prior-art references have detailed the myriad types of barcodes, most of which are applicable to the methods and systems disclosed herein. For example, U.S. Patent No. 5,490,217 discloses a high capacity two-dimensional barcode for association with a document. U.S. Patent No. 5,513,264 discloses one-dimensional codes such as UPC, Code 39, and Code 128; two-dimensional barcodes such as PDF 417, Code 49 and Code 16K; matrix codes such as DataCode, Code 1, Varicode and MaxiCode; and graphic codes such as Glyphs. U.S. Patent No. 6,565,003 discloses a two-dimensional barcode having a 20 x 20 array of data bits. U.S. Patent No. 6,753,977 discloses a document barcode that is imperceptible to the human eye. Several particular barcodes are disclosed herein; however, merely for the purposes of example. In one embodiment consistent with the present invention, the rendered barcode is a rectangular, two-dimensional barcode. Specifically, FIG. 5 illustrates one type of black and white barcode having a tile size of 5 x 5 pixels, wherein the maximum digital-only data capacity is 90,000 bits and the maximum closed loop data capacity is 3,600 bits. This size of barcode may allow for effective reading, printing, and scanning. FIG. 6 illustrates an 8-bit grayscale barcode having a tile size of 1 x 1 pixels, wherein the maximum digital-only data capacity is 720,000 bits and the maximum closed loop data capacity is 28,800 bits. Comparatively, this barcode may have lower printing and scanning effectiveness. Higher-capacity barcodes, such as the PDF417 shown in FIG. 7 and the QR CODE shown in FIG. 8, may also be applicable to the present disclosure."

I''



FIG. 5

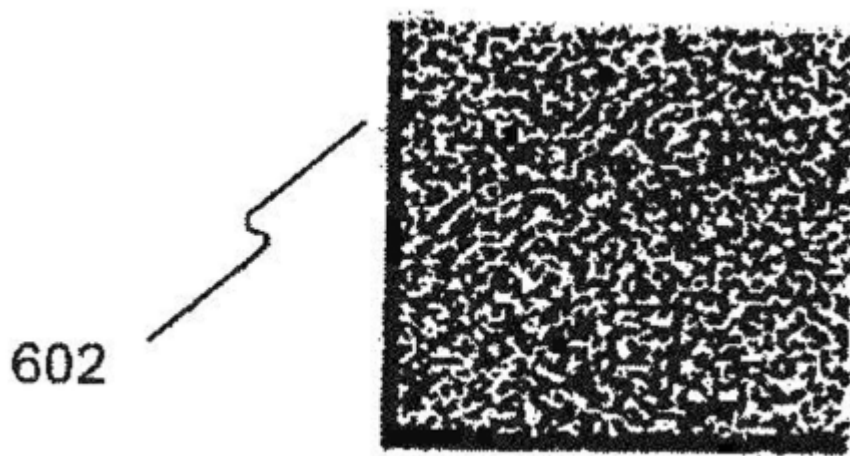


FIG. 6



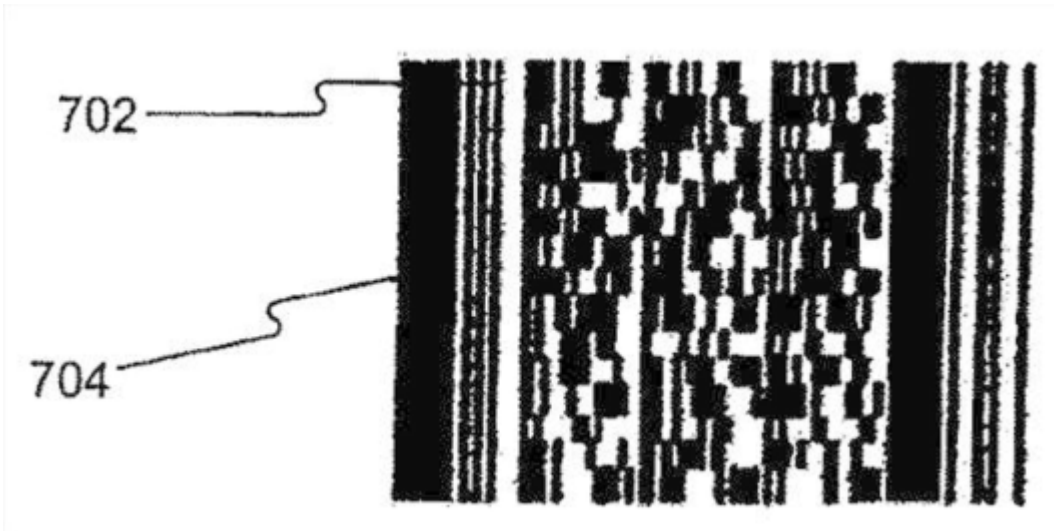


FIG. 7

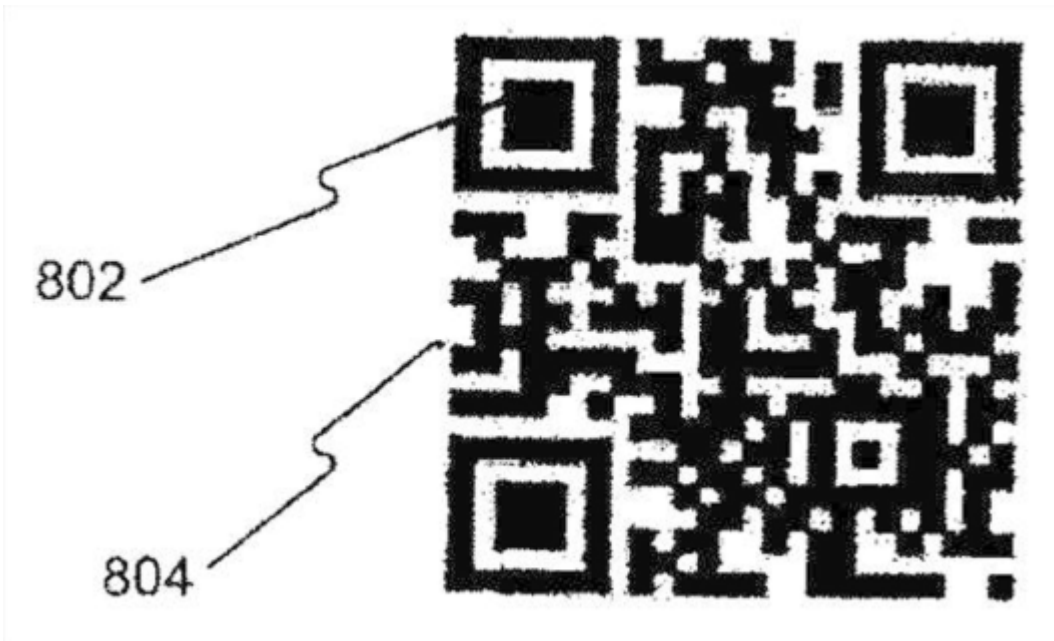


FIG. 8"

### C Judgment

As indicated in A and B, neither Evidence A No. 3 nor Evidence A No. 4 includes the matter in Invention 7, "the authenticity of the secret in the visible pattern (420) can be verified only by using a remote device (30)". As indicated in No. 3 2, Evidence A No. 7 also does not include the above matter. Thus, the matter is not considered a technique which had been well-known before the filing of the patent application.

Therefore, it cannot be said that Invention 7 is identical with the invention described in Evidence A No. 3, Evidence A No. 4, and Evidence A No. 7 and that Invention 7 could have been easily made by a person skilled in the art on the basis of the matters described in Evidence A No. 3, Evidence A No. 4 and Evidence A No. 7. The patent according to Claim 7 cannot be revoked by the reasons alleged by the Opponent, accordingly.

(4) Regarding Invention 9

Invention 9 is different from Invention 1 in category expression generally. It cannot be said that Invention 9 is not identical with the invention described in Evidence A No. 1 to Evidence A No. 4 and Evidence A No. 8 to Evidence A No. 9 for the same reasons as for Invention 1, and that Invention 9 could have been easily made by a person skilled in the art on the basis of the matters described in Evidence A No. 1 to Evidence A No. 4 and Evidence A No. 8 to Evidence A No. 9. The patent according to Claim 9 cannot be revoked by the reasons alleged by the Opponent, accordingly.

(5) Regarding Inventions 10 to 16 and Inventions 18 to 25

Inventions 10 to 16 and Inventions 18 to 25 are further restrictions of Invention 9. Thus, the patent according to Claims 10 to 16 and Claims 18 to 25 cannot be revoked by the reasons alleged by the Opponent, for the same reasons as those indicated in (4).

(6) Regarding Invention 26

The Opponent alleges as follows in the written opposition to the grant of a patent: The invention according to Claim 26 of the scope of claims before the correction should be revoked under the provisions of Article 29(1)(iii) of the Patent Act since the invention is identical with invention described in Evidence A No. 3; The patent of the above invention should be revoked under the provisions of Article 29(2) of the Patent Act, since the invention could have been easily made by a person skilled in the art on the basis of the invention described in Evidence A No. 3.

The Evidence A No. 3 describes the matters indicated in (3) A. The matter, "A two-dimensional code 1 formed by offset printing or by an inkjet printer", is included in B, however, the matter in Invention 26, "the secondary information is first printed with offset printing and then primary information is printed with inkjet printing", is not included.

Therefore, it cannot be said that Invention 26 is identical with the invention described in Evidence A No. 3, and that Invention 26 could have been easily made by a

person skilled in the art on the basis of the matters described in Evidence A No. 3. The patent according to Claim 26 cannot be revoked by the reasons alleged by the Opponent, accordingly.

(7) Regarding Invention 27

The Opponent alleges as follows in the written opposition to the grant of a patent: The invention according to Claim 27 of the scope of claims before the correction should be revoked under the provisions of Article 29(1)(iii) of the Patent Act since the invention is identical with invention described in Evidence A No. 5; and the patent of the above invention should be revoked under the provisions of Article 29(2) of the Patent Act since the invention could have been easily made by a person skilled in the art on the basis of the invention described in Evidence A No. 5.

The matters described in Evidence A No. 5 is examined below.

A Matters described in Evidence A No. 5

Evidence A No. 5 (U.S. Patent Application Publication No. 2013/0173405) describes the following matters.

J "[0029] FIG. 1 illustrates a bank card 100 according to the invention. This is a card of dimensions 54×85.6×0.76 mm, but other dimensions can be used. It comprises a microcircuit 110 including a controller and memory in a secure assembly with flush contacts.

[0030] On one of its surfaces, here the surface on which the contacts of the microcircuit 110 are flush, the card also presents a two-dimensional barcode 120, responding to the QR standard (Quick Response). Other two-dimensional barcode standards could be used, and a one-dimensional barcode is also a possible variant. A pictogram responding to other coding conventions can also be used, provided it codes information for a transaction."

K "[0040] FIG. 3 illustrates a reading terminal 300, used for the transaction, and which is connected by a network 310 to a server 320.

[0041] The reading terminal 300 comprises a keypad 280 (or at least a man-machine interface for inputting an alphanumeric chain), a camera 302 for reading barcodes 2D, a SIM card (Subscriber Identification Module 309), and a control unit 305 comprising especially local software 307 for processing transaction requests. A transaction counter 308 is also present in the control unit 305 or alternatively in the SIM card 309

for greater security (alternative not illustrated). In a variant, the SIM card is included in the control unit 305. The screen 200 forms part of the reading terminal 300.

[0042] The server 320 can comprise in a memory a reference password 325 associated with the owner of the card 100 and a messaging address 327 associated with the owner of the card 100."

L "

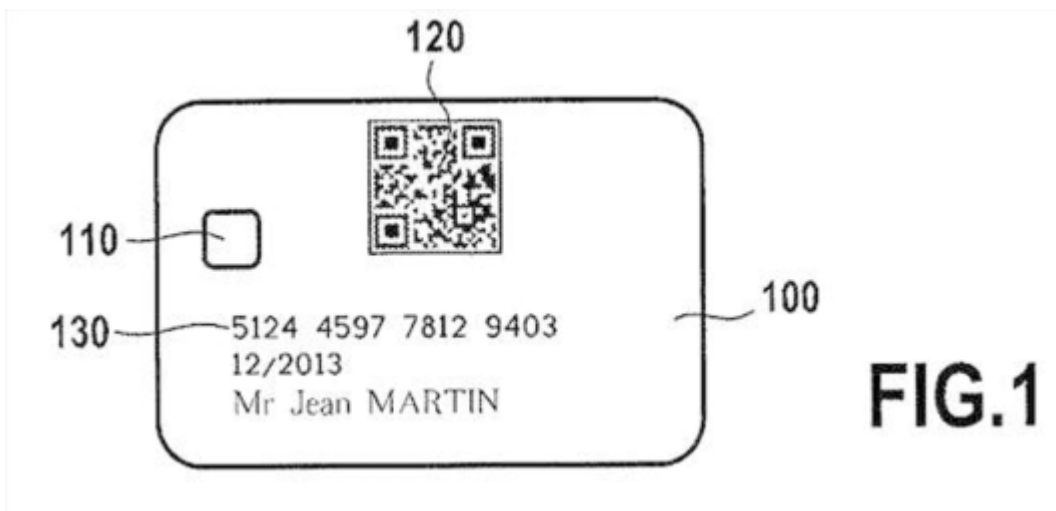


FIG. 1

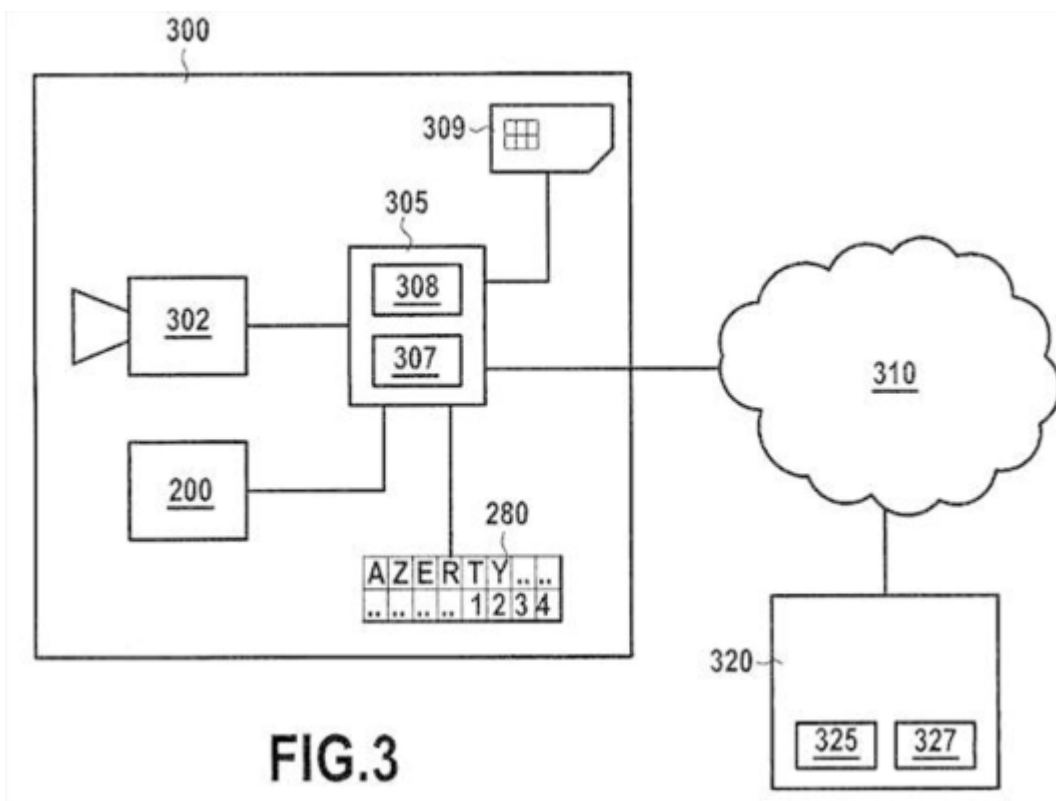


FIG.3

FIG. 3"

## B Judgment

Evidence A No. 5 does not includes the following matters in Invention 27, especially: "a step of embedding secondary information in a visible pattern (120; 220; 320; 420; 520; 620) embedded within said 2D barcode in at least one area that does not contain any primary information such that the secondary information is separated from the primary information", "said secondary information in a visible pattern is formed by light and dark elementary sub-cells having a largest dimension smaller than 50  $\mu\text{m}$  configured to be difficult to reproduce without alteration", and "said secondary information is generated using a secret key such that the visible pattern contains a secret (426)".

Therefore, it cannot be said that Invention 27 is identical with the invention described in Evidence A No. 5 and that Invention 27 could have been easily made by a person skilled in the art on the basis of the matters described in Evidence A No. 5. The patent according to Claim 27 cannot be revoked by the reasons alleged by the Opponent, accordingly.

### (8) Regarding Inventions 28 to 33

Inventions 28 to 33 are further restriction of Invention 26 or 27. Thus, the patent according to Claims 28 to 33 cannot be revoked by the reasons alleged by the Opponent, for the same reasons as those indicated in (6) and (7).

## 2 Regarding Article 36(4)(i) and Article 36(6) of the Patent Act (Reason 2)

### (1) Regarding Article 36(4)(i) of the Patent Act (Violation of enablement requirement)

The Opponent alleges as follows in the written opposition to the grant of a patent: The detailed description of the invention in the specification is not clear and sufficient to enable a person skilled in the art to carry out the inventions according to Claims 1 to 33 of the scope of claims before the correction; neither the specification nor drawings includes descriptions about especially the matter of the invention according to Claim 1 before the correction that "the secondary information in a visible pattern" is "configured to be difficult to reproduce without alteration" and the matter of the Invention according to Claim 9 before the correction, "is made difficult to reproduce without alteration".

We will examine how the matter, "difficult to reproduce without alteration", is

described in the detailed description of the invention in the specification.

The following descriptions are recognized in paragraphs [0028] to [0030] and [0034] of the specification. (The underlines were added by the body for explanation. The same applies hereinafter.)

"[0028]

Disclosed in this specification is a method for creating a 2D barcode comprising: embedding primary information that can be read by a 2D barcode reader in a primary information pattern; and

embedding secondary information that is made difficult to reproduce without alteration in a visible pattern,

in which said pattern is embedded within said barcode in at least one area that does not contain any primary information, forming thereby a source 2D barcode.

Unless otherwise indicated in the present text, 2D barcode and all elements of 2D barcode such as primary information pattern and its primary information, visible pattern and its secondary information, data area, elementary cells, elementary sub-cells, signature, secret, etc. concern source 2D barcode and all elements of such 2D barcode, but not original 2D barcode and all elements of such 2D barcode (i.e. for instance printed or screen displayed source 2D barcode) and not a non-original 2D barcode after reproduction of the original 2D barcode (i.e., for instance, scanned or copied original 2D barcode).

[0029]

In this context, 'primary information' relates to information about a product or a service easily accessible to dedicated users, which presence is easy to detect and being easily recognized within a 2D barcode. Also, this primary information has a content which is easy to verify, a format which is conform to 2D barcode standards so as to be easily recognized as a certain 2D barcode type, and which can be easy to duplicate.

[0030]

'Secondary information' relates to information which is aimed to validate authenticity (original character) of the 2D barcode and are more difficult to reproduce than primary information without alteration. Secondary information therefore does not necessarily need to contain any message about the product or document on which the 2D barcode is placed, but entirely focus on providing counterfeit detection means. Therefore, secondary information is not information like the primary information, in the sense that from the decoder perspective, no message is decoded, but a similarity with an original pattern is measured. Both primary information and secondary information are

preferably in the form of pixels or groups of pixels. 'Secondary information' may thus be in the form of a pattern of elementary sub-cells forming a so-called 'fingerprint', whereby the elementary sub-cells are sufficiently small to prevent the reproduction of the pattern without introducing errors. The copying (scanning) of an originally printed pattern of elementary sub-cells representing the secondary information, followed by the visual reproduction (e.g. printing or representation on screen) thus leads to an alteration of the 'fingerprint' that can be detected by the various means described herein (for instance by comparison of the fingerprint with a secondary information generation file or by comparison with an image corresponding to a scan or scans of original prints of the secondary information). As discussed herein, the secondary information may be randomly generated, in particular by use of a randomly or pseudo-randomly generated key that is kept secret, such that the secondary information contains a secret that prevents it from being re-generated by a counterfeiter. A counterfeiter only has access to the printed original that cannot be copied and reproduced without some detectable alteration."

"[0034]

The expression 'difficult to reproduce without alteration' means to be affected by copying; i.e., that most copying machines, scanners, image capture devices, or printers are not able to copy, capture, or reproduce the 2D barcode without altering the visible pattern, which renders the secondary information systematically non readable or non-correctly readable after scanning or copying of the original printed visible pattern. For instance, the original printed visible pattern of the original 2D barcode contains fine details that cannot survive copying: authentication is based on scanning and analyzing visible pattern details which are more numerous for original 2D barcodes than for non-original 2D barcodes. Said otherwise, the expression 'difficult to reproduce without alteration' means that the secondary information is deteriorated when copied and reproduced, such that it has lost features that are characteristic or original in the secondary information."

According to the above description, we understand that the expression "difficult to reproduce without alteration" means "to be affected by copying; i.e., that most copying machines, scanners, image capture devices, or printers are not able to copy, capture, or reproduce the 2D barcode without altering the visible pattern" and means to produce an effect that "renders the secondary information systematically non readable or non-correctly readable after scanning or copying of the original printed visible

pattern". ([0034])

We understand that the content disclosed in the specification contains "embedding secondary information that is made difficult to reproduce without alteration in a visible pattern" ([0028]) and that the "secondary information" is "information which is aimed to validate authenticity (original character) of the 2D barcode and is more difficult to reproduce than primary information without alteration" and "may thus be in the form of a pattern of elementary sub-cells forming a so-called 'fingerprint', whereby the elementary sub-cells are sufficiently small to prevent the reproduction of the pattern without introducing errors, the copying (scanning) of an originally printed pattern of elementary sub-cells representing the secondary information, followed by the visual reproduction (e.g. printing or representation on screen) thus leads to an alteration of the 'fingerprint' that can be detected by the various means described herein (for instance by comparison of the fingerprint with a secondary information generation file or by comparison with an image corresponding to a scan or scans of original prints of the secondary information)" ([0030]). We also understand that the above matters produce an effect that a "counterfeiter" "only has access to the printed original that cannot be copied and reproduced without some detectable alteration" ([0030]).

In addition, the following descriptions are recognized in [0036] and [0046] of the specification.

"[0036]

The secondary information may be formed by black and white elementary sub-cells (notably pixels) having a largest dimension smaller than 0.2 mm, preferably smaller than 0.1 mm, preferably smaller than 50  $\mu$ m in the original 2D barcode."

"[0046]

As can be seen from FIG. 1, this visible pattern 120 is formed by black and white elementary sub-cells 122 which have been also represented as a chosen arrangement of pixels (shown in a non-limitative way as squares) which are smaller than elementary cells 102 forming primary information pattern 110 and which code secondary information. The elementary sub-cells 122 size allow most copying machines to copy the secondary information pattern 110 with a sufficiently significant alteration to impede a later correct decoding of this visible pattern 120. An important feature of this invention is not how much information there is in the fingerprint and more generally in the original visible pattern 120 before printing or copying, but how much information there is after printing or copying in the visible pattern 120. For the same



visible pattern 120, the effects of printing or copying and the density of information in the printed or copied visible pattern 120 will depend on the properties of printing or copying (type of printer or copying machine, type of paper, ink, and specific color density requirements for the printing or copying job). Typical but non-limitative size of elementary sub-cells 122 coding secondary information in the visible pattern 120 ranges from 1x1 pixel to 5x5 pixels, notably from 1x1 pixel to 3x3 pixels, and preferably is 1x1 pixel or 2x2 pixels. This can correspond to typical but non-limitative size (largest dimension) of elementary sub-cells 122 of original 2D barcode 100 ranging from 5 µm (micrometers) to 300 µm, notably from 10 µm to 200 µm, preferably notably from 20 µm to 100 µm, and preferably notably from 30 to 50 µm. For instance, for a printer resolution of 600 ppi (pixels per inch), a typical size for original 2D barcode 100 is about 1.11 cm edge length square, with 33 x 33 elementary cells 102 having each a size of about 0.34 mm, and with a visible pattern of 8 x 8 elementary sub-cells 122 being each formed by a pixel having a size of about 40 µm (micrometers)."

In light of the above, we also understand a specific form of the description "made difficult to reproduce without alteration". It can be said that a person skilled in the art having received the description can find a description which is clear and sufficient to carry out the inventions according to Claims 1 to 33 of the scope of claims before the correction from the specification. Thus, it cannot be said that the description of the detailed description of the invention in the specification is not clear and sufficient to enable a person skilled in the art to carry out the inventions according to Claims 1 to 33 of the scope of claims before the correction.

Therefore, the allegation of the Opponent cannot be accepted.

## (2) Regarding Article 36(6) of the Patent Act

The Opponent alleges as follows in the written opposition to the grant of a patent: "The inventions according to Claims 1 to 33 of the scope of claims before the correction are not described in the detailed description of the invention in the specification, and they are unclear, especially, regarding 'the secondary information in a visible pattern', the following points are not described in the detailed description of the invention in the specification: 'configured to be difficult to reproduce without alteration' in the invention according to Claim 1 before the correction; and 'made difficult to reproduce without alteration' in the invention according to Claim 9 before the correction."

However, as indicated in (1), the point "made difficult to reproduce without alteration" is described clearly and sufficiently in the detailed description of the invention in the specification, and it is not considered to be unclear.

Therefore, the allegation of the Opponent cannot be accepted.

### (3) Summary

According to the examinations in (1) and (2), the description of the detailed description of the invention in the specification is clear and sufficient to enable a person skilled in the art to carry out the inventions according to Claims 1 to 33 of the scope of claims before the correction, and it cannot be said that the description violates the provisions of Article 36(4)(i) of the Patent Act. The inventions recited in Claims 1 to 33 of the scope of claims before the correction are described in the detailed description of the invention in the specification, and it is not considered to be unclear. It cannot be said that the inventions violate the provisions of Article 36(6) of the Patent Act. Thus, the patent according to Claims 1 to 5, 7 to 16, and 18 to 33 cannot be revoked by Reason 2 alleged by the Opponent.

### No. 6 Closing

As above, the patent according to Claims 1 to 5, 7 to 16, and 18 to 33 cannot be revoked by the reasons for rescission stated in the notice of reasons for rescission and the reasons for opposition to the grant of a patent stated in the written opposition to the grant of a patent.

No other reason for revoking the patent according to Claims 1 to 5, 7 to 16, and 18 to 33 is found.

The patent according to Claim 6 and 17 was deleted by the correction as described above. Accordingly, there is no claim to be subjected to the opposition to the grant of a patent made by the opponent regarding Claims 6 and 17. Thus, the opposition shall be dismissed under the provisions of Article 135 of the Patent Act which is applied *mutatis mutandis* in the provisions of Article 120-8(1) of the Patent Act.

Therefore, the decision shall be made as described in the conclusion.

January 29, 2021

Chief administrative judge: TANAKA, Hideto  
Administrative judge: YAMAZAKI, Shinichi  
Administrative judge: KOBAYASHI, Hidekazu