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Declarations under Rule 4.17:

— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

(54) Title: SYSTEM AND METHOD OF IDENTIFICATION AND AUTHENTICATION FOR TRACING AGRICULTURAL ASSETS, IDENTIFICATION ELEMENT FOR SECURE IDENTIFICATION OF AGRICULTURAL ASSETS AND CORRESPONDING COMPUTER PROGRAMS

(57) Abstract: The present invention refers to a system and to a method of identification and authentication for tracing agricultural assets, wherein the agricultural assets are provided with identification elements univocally coded and grouped into rolls, requiring digital activation to be validated. Moreover, the present invention refers to an identification element and to corresponding computer programs.



From the INTERNATIONAL BUREAU

PCTNOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

To:

CARVAJAL Y URQUIJO, Isabel
Suero de Quiñones 34-36
28002 Madrid
ESPAGNE

Date of mailing (day/month/year) 05 March 2020 (05.03.2020)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 2018/145982	
International application No. PCT/EP2018/081255	International filing date (day/month/year) 14 November 2018 (14.11.2018)

1. The following indications appeared on record concerning:		
☐ the applicant	☒ the inventor	☐ the agent
☐ the common representative		
Name and Address PONTE SOARES, Marcos Avenue Dapples 46 1006 Lausanne Switzerland	State of Nationality	State of Residence
	Telephone No.	
	Facsimile No.	
	E-mail address	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
☐ the person	☐ the name	☒ the address
☐ the nationality		
☐ the residence		
Name and Address PONTE SOARES, Marcos Avenue des Désertes 18 1009 Pully Switzerland	State of Nationality	State of Residence
	Telephone No.	
	Facsimile No.	
	E-mail address ☐ Notifications by e-mail authorized	
3. Further observations, if necessary:		
4. A copy of this notification has been sent to:		
☒ the receiving Office	☒ the International Preliminary Examining Authority	
☒ the International Searching Authority	☐ the designated Offices concerned	
☐ the Authority(ies) specified for supplementary search	☒ the elected Offices concerned	
	☐ other:	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Nevers Althea e-mail pct.team5@wipo.int Telephone No. +41 22 338 74 05
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 2018/145982	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/EP2018/081255	International filing date (day/month/year) 14.11.2018	Priority date (day/month/year) 28.11.2017	
International Patent Classification (IPC) or national classification and IPC INV. G06Q10/08			
Applicant SICPA HOLDING SA			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>8</u> sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. ☒ (sent to the applicant and to the International Bureau) a total of <u>7</u> sheets, as follows: ☒ sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions). ☐ sheets containing rectifications, where the decision was made by this Authority not to take them into account because they were not authorized by or notified to this Authority at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4bis, 70.2(e), 70.16 and 91.2). ☐ superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in item 4 of Box No. I and the Supplemental Box (see Rule 70.16(b)). b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing, in the form of an Annex C/ST.25 text file, as indicated in the Supplemental Box Relating to Sequence Listing (see paragraph 3ter of Annex C of the Administrative Instructions).			
4. This report contains indications relating to the following items: ☒ Box No. I Basis of the report ☐ Box No. II Priority ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability ☐ Box No. IV Lack of unity of invention ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement ☐ Box No. VI Certain documents cited ☐ Box No. VII Certain defects in the international application ☐ Box No. VIII Certain observations on the international application			
Date of submission of the demand 16.09.2019		Date of completion of this report 08.04.2020	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465		Authorized officer Gardiner, Alexander Telephone No. +49 89 2399-7401	



Box No. I Basis of the report

1. With regard to the **language**, this report is based on
- ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a) and (b))
2. With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

Description, Pages

1-9 as originally filed

Claims, Numbers

1-12 filed with the letter of

30-01-2020

- ☐ a sequence listing - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rules 70.2(c) and (c-bis)):
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
5. ☐ This report has been established:
- ☐ taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-bis) and 70.2(e)).
 - ☐ without taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91(Rules 66.4bis and 70.2(e)).

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2018/081255

6. ☒ With regard to top-up searches (Rules 66.1 *ter* and 70.2(f)):
- ☒ A top-up search was carried out by this Authority on 27.11.2019 (all discovered documents are listed in the Supplemental Box Relating to Top-up Search).
 - ☐ Additional relevant documents have been discovered during the top-up search.
 - ☐ No top-up search was carried out by this Authority because it would serve no useful purpose.
7. ☐ Supplementary international search report(s) from Authority(ies) has/have been received and taken into account in establishing this report (Rule 45bis.8(b) and (c)).

* If item 4 applies, some or all of those sheets may be marked "superseded".

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1-12</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-12</u>
Industrial applicability (IA)	Yes: Claims	<u>1-12</u>
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Item 5

Reference is made to the following documents:

D1 EP 1 756 759 A1 (SICPA HOLDING SA [CH]) 28 February 2007
(2007-02-28)

D2 EP 1 346 622 A1 (DEERE & CO [US]) 24 September 2003 (2003-09-24)

1. The current application is directed towards the establishment of secure means of identification of items. The particular items are related to the agricultural sector, however no definition or specification in the application as a whole establishes a technical link between this and the manners of identification employed, which may be utilised in any sector where traceability of items is required.

Accordingly, the person skilled in the art would consider (when faced with the problem of tracing items in a particular sector) any suitable means of identification and tracing of items and search correspondingly widely for information on this.

1.1 Likewise, the application makes much of including multiple differing manners of identifying items. The 'more the merrier' appears to be the approach taken, with various means being employed simultaneously. While it is appreciated that the more different ways there are of identifying something, the less likely it is to remain unidentified, each of the means of identification is being employed for its known uses, with no unexpected or surprising synergistic effect being claimed by the applicant or derivable by the examiner. Such approaches are applied in common usage e.g. in bank notes, where multiple complementary (but individual) security and identification means are applied to increase security. Likewise, bar codes are frequently accompanied by a numerical representation of information.

1.2 The applicant notes eight separate security levels. No particular technical problem appears to be solved by this (apparently arbitrary) choice of integer.

The choices of security mechanism and their visibility appear to their simple widespread adoption and existence (RFID, QR and bar codes, serial numbers, microtext label embellishment, security ink etc.) or even related to the regulatory requirements of jurisdictional entities (e.g. start of page 10, the Ministry of Agriculture, Livestock and Supply of Brazil).

No technical detail of any of the mechanisms is either claimed or described, merely the adoption of such mechanisms.

1.3 That which remains is the simple act of defining that a lot of security measures will be employed at once, and that the data contained and referred to will follow the requirements of an administrative scheme suitable for the item thus marked.

1.4 The reading device may be any suitable hardware. Again, no technical details beyond this baseline suitability are given - any suitable smartphone capable of reading codes, connecting to the internet and reporting its position is what is described by the applicant.

1.5 It should be noted that in the definition of claim 10 may be interpreted as directed to a product with an identification element with one 'type' of security in 'at least eight security elements' - which may be considered as any bar code with at least eight strips.

Claim 11 lists possible 'different' 'security' elements but this does not mean that claim 10 cannot be interpreted as eight 'different' strips or sets of strips in a bar code.

1.6 It should be noted that claim 12 may be interpreted as merely a storage device, containing a program suitable for devices which, when run, only enact the methods referred to.

1.7 It should thus be realised that, even without documentary evidence, the subject-matter both claimed in claims 1-12 (and especially independent system claim 1, semi-independent claim 6, a method acting on the already claimed system claims 1-5 and semi-independent claim 12, a medium comprising instructions to carry out the already defined methods) and described in the application as a whole is not considered to be inventive (Article 33 PCT), given the lack of technical specification beyond multiple

security means being added to a particular type of item, being considered an obvious agglomeration of features in juxtaposition, with no non-obvious effect alone or in combination.

2. For the interest of any regional authority requiring it, attention is also drawn to D1, the applicant's own document, which discloses the basic use of multiple secure marking means for identifiers suitable for use in the agricultural domain. It is not credible to argue that such a generally applicable document would not be considered for use in the agricultural domain unless some form of technical prejudice were present. As testimony that this is not the case, D2 shows that identification markers allow for handling of data concerning marked items in the agricultural sector (such a handling of data appears in any case to be acknowledged in the application itself).

This combination is immediately evident, and also conversely, starting from D2 showing agricultural sector use, how this may be extended to various other markers and means would be an immediate point of interest and answered with D1.

2.1 While the applicant may consider the use of multiple security means to result in a higher level of security (the examiner does not disagree - see above), and the area of use to be of importance, no technical specification is present in the current application to allow any technical problem for which a technical solution has been provided which is inventive. Rather, without any particular link being made to a technical synergy between the item secured, its type or make-up, security means are merely employed. Argument to the effect that absolute security is achieved is not considered convincing - no matter how hard humans attempt to apply multiple and complex security means to items, labels are forged and security questioned. The manners of increasing security are then to apply tags, labels, tattoos, watermarks and stamps - all themselves well known.

2.2 Referring to page 6 of the description it is apparent that what is done is that a roll of labels is produced. The number is related to e.g. the number of kg of product. The labels are to be applied to sacks (see par 49).

It is noted in D2 that containers used in the farm produce chain have identifiers (see fig14 'farm container identifier', fig 16 'processor container identifier') and also seed bags are marked (e.g. with a bar code) see fig 19.

The information presented on the labels of the rolls is noted to be particular and to have varying levels of security added.

The manners of security and presentation of information are listed in the application itself as known (see par 37-43).

Even were the person skilled in the art somehow not to come to the conclusion that the various manners of adding secure identification information to a product via a label produced for such a purpose is obvious, reference to the prior art in this respect would yield immediate teaching in the form of D1, which shows how labels may be produced with a) additional security means (in the case of D2 also taking resilience into account) and b) particular information 'preloaded' onto the label about what it will be attached to and c) even extending to being able to further customise the information in the label (see D1 par 21-28).

2.3 Accordingly, claims 1, 6 and 12 of the application are not inventive as the following is considered immediately obvious and/or disclosed already in D1 and D2, with D1 and D2 being relevant and combined in an obvious manner as noted above.

A system of identification and authentication for tracing agricultural assets, characterised in that it comprises:

- a remote server (D1, par 9 and D2 fig 1) of a service provider comprising a processing unit configured to register agricultural assets chain participants data in a database, to create an identification element endowed with a unique secure code linked to an agricultural assets chain participant and to send the identification element to the requesting agricultural assets chain participant for subsequent digital activation of the identification element through an association, via the remote server, of the unique secure code of the identification element to an origin data of the agricultural asset (D1 par 10-18, 23, 27 and D2 par 52));
- one or more mobile devices configured to read the identification element and to verify an authenticity of the agricultural assets by checking the unique secure code compliance with an information contained in the database of the remote server (D1, par 48, section 3 and D2 fig 19, par 159-162)

2.4 Accordingly the examiner remains of the view that what is claimed in the application is a choice to use multiple secure markings on a single item, which is obvious in itself and, in light of D1 and D2, also obvious in light of the prior art even in the specific field of agricultural product tracing using labels which include multiple security levels and are produced to indicate contents of whatever they are attached to in a manner which increases security.

2.5 The remaining claims 2-5 and 7-11 refer to immediately evident matters of security element type and/or placement (putting a 2D bar-code where it can be read) or to administrative features (e.g. applicability to producers, consumers, users, or an administrative limit on usefulness of a code). Such features are not considered to contribute any technical inventive step which is non-obvious.

EUROPEAN PATENT OFFICE

D-80298 Munich

Germany

Filed online

Madrid, 30 January 2020

O/REF: 2017/78294
International application No. PCT/EP2018/081255
Applicant: SICPA HOLDING SA

Dear Sirs,

In response to the second Written Opinion of the International Preliminary Examining Authority, it is requested that the following amendments and comments are considered during the Chapter II examination.

Amendments

We hereby file an amended set of claims. A tracked-changes version of the amended set of claims is also enclosed, for ease of reference of the Examiner. The consideration of the following is respectfully requested.

Claims 9 and 10 have been reworded into dependent claims subordinated to independent claim 6 related to a method as follows:

10. ~~An identification element for identification and authentication of agricultural assets according to a~~ The method of according to claims 6 to 9, characterised in that the identification element is provided with ...

11. ~~The identification element according to~~ method according to claim 10, characterised in that the security elements comprise: ...

The reference in claim 12 to the method claims has been corrected accordingly to refer to claims 6 to 11.

Thus, no new matter has been introduced by the above-mentioned amendments.

Patentability comments

The set of claims as amended relates to a system of identification and authentication for tracing agricultural assets, a method of identification and authentication for tracing agricultural assets, and a respective computer readable medium comprising instructions to execute the claimed method.

As indicated in par. [0059]-[0061] of the description as filed, the claimed invention allows differentiating agricultural assets such as seeds produced following the regulations and marketed by providers and intermediaries, by means of a printed security label, personalized on request and distributed by the service provider. The labels applied in this way to the packaging by the intermediaries allow end consumers to differentiate the legitimate seeds from the pirated seeds. Accordingly, the intermediary and mainly the final consumer can verify, with the application for mobile devices, the origin of the packages and of the seeds contained, having the guarantee of dealing with quality products, certified in their origin.

Said technical effect is achieved by the features of independent claims, which encompass:

- **on the one hand**, registering agricultural assets chain participants data in a database, creating an identification element endowed with a unique secure code linked to an agricultural assets chain participant and sending the identification element to the requesting agricultural assets chain participant for subsequent digital activation of the identification element through an association, via the remote server, of the unique secure code of the identification element to an origin data of the agricultural asset, and,
- **on the other hand**, by reading the identification element and verifying an authenticity of the agricultural assets by checking the unique secure code compliance with an information contained in the database of the remote server.

Regarding the inventive step of the claimed invention and in view of the technical effect mentioned above, the problem to be solved by the present invention may therefore be regarded as how to provide improved system and method of identification and authentication for tracing agricultural assets, which would provide security to the entire chain of agricultural assets producers, retailers and consumers, which would also allow proper differentiating agricultural assets and easy verifying the origin of the packages and of the seeds contained, having the guarantee of dealing with quality products, certified in their origin, or identifying possible falsification or loss of products (*completely excluding a possibility of falsification of the identification element and, at the same time, allowing authentication thereof without using costly equipment*).

D1 discloses an item comprising at least two data storage elements such as e.g. an RFID transponder and a barcode, wherein the latter is non-visible for the unaided human eye and comprises coded information. It allows for a backup of information between the two data storage elements, in order to prevent inadvertent or malicious data loss.

However, **D1** does not relate to tracing agricultural assets or providing security to the entire chain of agricultural assets producers, retailers and consumers and is fully silent at least about digital activation of the identification element through an association, via the remote server, of the unique secure code of the identification element to an origin data of the agricultural asset, and about reading, using a mobile device, the identification element and verifying an authenticity of the agricultural assets by checking the unique secure code compliance with an information contained in the database of the remote server. Accordingly, the claimed invention is novel over **D1**.

D2 discloses a method of tracing a crop comprising: electronically recording at least one of planting information, growing information, harvesting information, chemical application information, and weather information for a particular crop from a defined geographic area; forming a respective data profile for the particular crop based on the recorded information; segregating the particular crop after harvesting from intermixing with other harvested crops; electronically recording a storage identifier associated with one or more corresponding storage volumes for holding the segregated particular crop; and associating the formed data profile with the storage identifier for each of the one or more storage volumes for holding the segregated particular crop.

In particular, according to **D2**, the data profile and storage identifier are transmitted from the grower or producer to the data management system, see e.g. par. [0061]-[0062], [0066] of **D2**. Accordingly, **D2** relies solely on the data provided by the grower/producer without any guarantee that these data are not modified or falsified at the grower or production site and thus it cannot provide full security to the entire chain of agricultural assets producers, retailers and consumers.

Thus, **D2** fails to disclose at least creating, by the service provider, the identification element endowed with a unique secure code linked to the agricultural assets chain participant; sending, by the service provider, the identification element to the agricultural assets chain participant; performing a digital activation of the identification element by the agricultural assets chain participant through an association, via the remote server, of a unique secure code of the identification element to an origin data of the agricultural assets.

Applicant respectfully submits that neither **D1**, nor **D2** gives the skilled person any information which would have enabled him/her to unambiguously arrive at the system and method of the present claims, and thus at the computer readable medium comprising instructions to execute the claimed method.

Accordingly, a system claimed in independent claim 1, a method claimed in independent claim 6, and a respective computer readable medium claimed in independent claim 12 and comprising instructions to execute the claimed method are believed to involve an inventive step over the above-mentioned documents **D1** and **D2**.

Respectfully submitted,

/Ricardo Ontañón/

PCT/EP2018/081255
Amended claims (clean)

CLAIMS

1. A system of identification and authentication for tracing agricultural assets, **characterised** in that it comprises:

- a remote server of a service provider comprising a processing unit configured to register agricultural assets chain participants data in a database, to create an identification element endowed with a unique secure code linked to an agricultural assets chain participant and to send the identification element to the requesting agricultural assets chain participant for subsequent digital activation of the identification element through an association, via the remote server, of the unique secure code of the identification element to an origin data of the agricultural asset;

- one or more mobile devices configured to read the identification element and to verify an authenticity of the agricultural assets by checking the unique secure code compliance with an information contained in the database of the remote server.

2. The system, according to claim 1, **characterised** in that the identification element is an element physically associated with the agricultural asset and capable of receiving identification and authentication markings.

3. The system according to claim 2, **characterised** in that the unique secure code of the identification element comprises a two-dimensional code, a unique serial number and a one-dimensional barcode for traceability.

4. The system, according to claim 1, **characterised** in that the remote server is configured to create the identification element for individual or collective package that is capable of containing the agricultural asset or a plurality thereof and is capable of receiving the identification element associated with it in a visible and easily accessible place.

5. The system according to claim 1, **characterised** in that it further comprises at least one of a graphic marking device, a material marking device and a digital marking device for identification element.

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Amended claims (clean)

6. Method of identification and authentication for tracing agricultural assets, implemented by means of a system of claims 1 to 5, characterised in that it comprises the following method steps:

- registering agricultural assets chain participants data in a database of a remote server of a service provider;
- requesting, by an agricultural assets chain participant, an identification element from the service provider;
- codifying, personalizing and creating, by the service provider, the identification element endowed with a unique secure code linked to the agricultural assets chain participant;
- sending, by the service provider, the identification element to the agricultural assets chain participant;
- applying the identification element, by the agricultural assets chain participant, to the agricultural assets or to the packaging of the agricultural assets;
- performing a digital activation of the identification element by the agricultural assets chain participant through an association, via the remote server, of a unique secure code of the identification element to an origin data of the agricultural asset; and
- reading the identification element and verifying an authenticity of the agricultural assets by checking the unique code compliance with the information contained in the database of the remote server.

7. The method, according to claim 6, **characterised** in that it is applicable to entire productive chain of agricultural assets, from a provider of the assets, to one or more intermediaries or retailers to a final user or final consumer of these assets, being administered by the service provider.

8. The method, according to claim 6, **characterised** in that the unique secure code comprises a two-dimensional code, a unique serial number and a

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Amended claims (clean)

one-dimensional barcode for traceability, all linked to the requesting agricultural assets chain participant.

9. The method, according to claim 6, **characterised** in that the identification elements are grouped in batches or rolls, being sent by the service provider to the requesting agricultural assets chain participant within a specific period not exceeding a predetermined time-limit.

10. The method according to claim 6, **characterised** in that the identification element is provided with at least one of three distinct types of security, comprising digital security, graphic security and material security distributed in at least eight different security elements.

11. The method according to claim 10, **characterised** in that the security elements comprise:

- security element printed with optically variable visible safety paint;
- tactile security element printed in relief;
- semi-visible security element by light polarization;
- semi-visible security element printed in microtext;
- hidden security element;
- forensic security element;
- two-dimensional code, serial code and barcode; and
- specific numerical relationship between the two-dimensional code, serial code and barcode.

12. A computer readable medium comprising instructions to execute a method of claims 6 to 11.