

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

# PCT

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY  
(PCT Rule 43bis.1)**

To:

see form PCT/ISA/220

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/IB2017/052463

International filing date (day/month/year)  
28.04.2017

Priority date (day/month/year)  
29.04.2016

International Patent Classification (IPC) or both national classification and IPC  
INV. G06Q20/06 G06Q20/36 G06Q20/38 G06Q20/02 G06F21/00 H04L9/32

Applicant  
NCHAIN HOLDINGS LIMITED

**1. This opinion contains indications relating to the following items:**

- Box No. I Basis of the opinion
- 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 Rule 43bis.1(a)(i) with regard to novelty, inventive step and 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


**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:



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Date of completion of this opinion

see form  
PCT/ISA/210

Authorized Officer

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of:
  - 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 (Rules 12.3(a) and 23.1 (b)).
2.  This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3.  With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
  - a.  forming part of the international application as filed:
    - in the form of an Annex C/ST.25 text file.
    - on paper or in the form of an image file.
  - b.  furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
  - c.  furnished subsequent to the international filing date for the purposes of international search only:
    - in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
    - on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4.  In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	<u>2-8, 10-15</u>
	No: Claims	<u>1, 9, 16-20</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-20</u>
Industrial applicability (IA)	Yes: Claims	<u>1-20</u>
	No: Claims	

2. Citations and explanations

see separate sheet

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1 Reference is made to the following documents:

- D1 Jeff Herbert ET AL: "A Novel Method for Decentralised Peer-to-Peer Software License Validation Using Cryptocurrency Blockchain Technology", , 27 January 2015 (2015-01-27), XP055358639, Retrieved from the Internet: URL:<http://crpit.com/confpapers/CRPITV159Herbert.pdf> [retrieved on 2017-03-24]
- D2 US 2015/206106 A1 (YAGO YARON EDAN [US]) 23 July 2015 (2015-07-23)
- D3 FR 3 018 378 A1 (MAIM ENRICO [FR]) 11 September 2015 (2015-09-11)
- D4 Anonymous: "Contract - Bitcoin Wiki", , 22 October 2015 (2015-10-22), XP055361462, Retrieved from the Internet: URL:<https://en.bitcoin.it/w/index.php?title=Contract&oldid=59172> [retrieved on 2017-04-04]
- D5 XU XIWEI ET AL: "The Blockchain as a Software Connector", 2016 13TH WORKING IEEE/IFIP CONFERENCE ON SOFTWARE ARCHITECTURE (WICSA), IEEE, 5 April 2016 (2016-04-05), pages 182-191, XP032927547, DOI: 10.1109/WICSA.2016.21 [retrieved on 2016-07-19]
- D6 WATANABE HIROKI ET AL: "Blockchain contract: A complete consensus using blockchain", 2015 IEEE 4TH GLOBAL CONFERENCE ON CONSUMER ELECTRONICS (GCCE), IEEE, 27 October 2015 (2015-10-27), pages 577-578, XP032858173, DOI: 10.1109/GCCE.2015.7398721 [retrieved on 2016-02-03]
- D7 Anonymous: "Distributed Hash Tables and Consistent Hashing | CloudFundoo", , 28 May 2012 (2012-05-28), XP055385840, Retrieved from the Internet: URL:<https://cloudfundoo.wordpress.com/2012/05/28/distributed-hash-tables-and-consistent-hashing/> [retrieved on 2017-06-28]

2 The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-20 is not new (Article 33(2) PCT) and/or does not involve an inventive step (Article 33(3) PCT).

3 Independent claim 1

3.1 Document D1 (abstract; paragraphs 5, 5.1, 5.2, 5.3) discloses a computer-implemented method for controlling the performance of a contract, the method comprising:

- storing a contract on or in a computer-based repository, the contract being associated with a licence between a first user and a second user (Par.5.1: steps 1-4);
- receiving over a communications network, a transaction comprising a transfer of a token from an agent to the first user or the second user, the transaction comprising metadata that includes an identifier indicative of a location where the contract is stored (Par.5.1: steps 1-4);
- querying a peer-to-peer distributed ledger to determine whether the transaction comprises at least one unspent output (Par.5.1: steps 4-5); and
- responsive to querying the peer-to-peer distributed ledger, determining whether to modify performance of the contract (Par.5.1: steps 4-5).

3.2 The subject-matter of claim 1 is therefore not new (Article 33(2) PCT).

4 Dependent claims 2-18 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step:

The additional features of claims 2-18 are disclosed in D1 and/or are related to obvious technical implementation of non-technical (administrative) requirements and/or are well known to the skilled person (see e.g. documents D2-D7).

5 The same reasoning applies, mutatis mutandis, to the subject-matter of the claims 19-20, which therefore are also considered not new and/or inventive.