



PATENTS ACT 1977

APPLICANT Fidelity National Information Services, Inc

ISSUE Whether patent application GB1800030.7 complies with section 1(2) of the Patents Act 1977

HEARING OFFICER Phil Thorpe

DECISION

Introduction

1. Patent application GB1800030.7 was originally filed as an international application on 3rd August 2016 with an earliest priority date of 4th August 2015. After entry into the national phase on 2nd January 2018, it was republished as GB 2556506 A on 30th May 2018.
2. Despite amendments to the application, the applicant has not been able to satisfy the examiner that the application meets the requirements of the Act, and so a pre-hearing report was issued on 19th November 2021. The applicant subsequently requested that a decision be made based on the papers on file.

The Invention

3. The invention relates to a system for maintaining a consolidated audit trail (CAT) of trading events in securities markets. More specifically, a network-based system ("order linkage system") comprises processing systems (including a CAT processor) for receiving event data for orders (such as the type of order, time of order or customer) from CAT reporters (such as broker-dealers and the Financial Industry Regulatory Authority) in order to determine relationships between the orders and order lifecycles for the orders. The system determines linkages between pairs of orders, the linkages representing a hierarchical relationship of parent orders and child orders. A parent order is for example an order that is routed to another venue, split into two or more orders, or combined with another order. A child order is an order that is produced from one or more parent orders. For example, a child order

can result from the routing, splitting, or combining of one or more parent orders. The linkages between the orders can be determined independently of the sequence in which the orders are received. During the determination of linkages, the system detects errors in the event data or order lifecycle and outputs error reports to the CAT processors to allow for correction.

4. The invention aims to overcome problems associated with prior art systems, including limitations on broker dealers being allowed to review their submitted data, which results in complications in issue resolution and in the mining of data for business intelligence.
5. The invention is represented in the following figures.

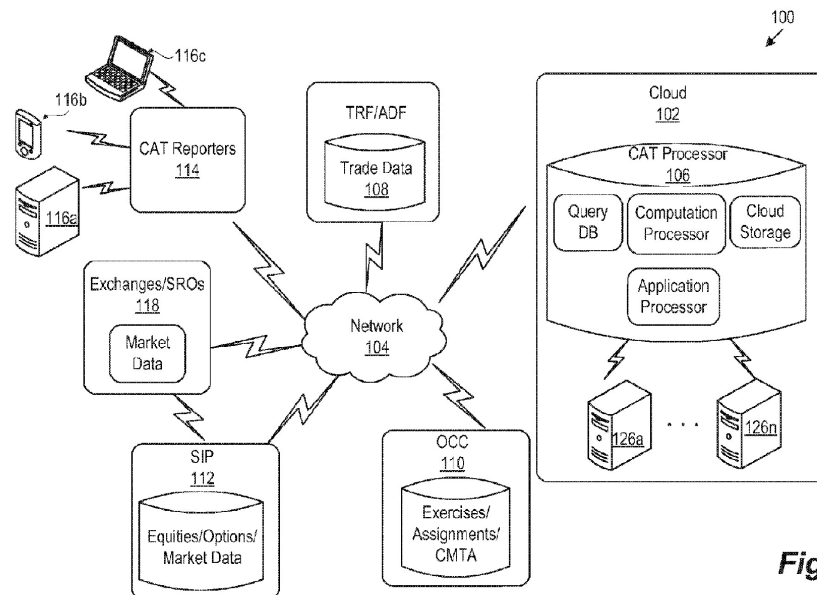


Fig. 1

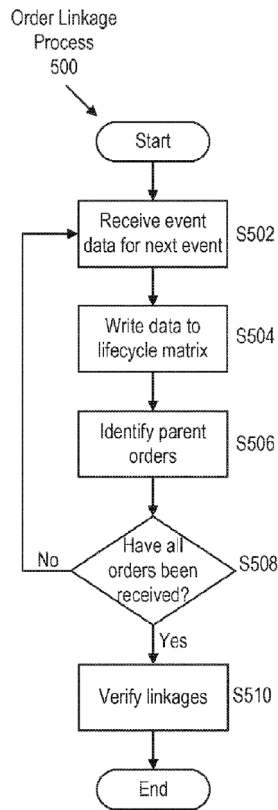


Fig. 5

6. The claims under consideration were filed on 5th November 2021. Claim 1 reads as follows:

A computer system comprising:

a non-transitory memory; and

one or more hardware processors coupled to the non-transitory memory that execute instructions to perform operations comprising:

obtaining, via a network, a plurality of orders,

generating an order lifecycle of related orders from the plurality of orders at least in part based on determining one or more linkages between pairs of orders from the plurality of orders, each order of the order lifecycle being uniquely identified at least in part based on a consolidated audit trail identifier,

determining the one or more linkages by determining daisy-chain linkages between the pairs of orders, each of the one or more linkages representing a hierarchical relationship of a parent order and a child order,

signalling an error in the order lifecycle when the order lifecycle comprises at least one of:

a fill order that is a parent order,
none of the orders of the order lifecycle is a new order,
none of the orders of the order lifecycle is a fill order, or
a new order that is a child order,
and
outputting a reporting presentation including the order lifecycle.

7. There are also independent claims to a non-transitory computer readable medium having instructions stored therein and a method performed in a computer system which include much of the wording of claim 1 and I am satisfied that they stand or fall with claim 1.

The Law

8. The examiner has raised an objection under section 1(2) of the Patents Act 1977 that the invention is not patentable because it relates a category of excluded matter. The relevant provisions of this section of the Act are shown with added emphasis below:

1(2) It is hereby declared that the following (amongst other things) are not inventions for the purpose of the Act, that is to say, anything which consists of...

*(c) ...**a scheme, rule or method for...doing business, or a program for a computer;***

but the foregoing provisions shall prevent anything from being treated as an invention for the purposes of the Act only to the extent that a patent or application for a patent relates to that thing as such.

9. As explained in the notice published by the IPO on the 8th December 2008¹, the starting point for determining whether an invention falls within the exclusions of section 1(2) is the judgment of the Court of Appeal in *Aerotel/Macrossan*².
10. The interpretation of section 1(2) has been considered by the Court of Appeal in *Symbian*³. *Symbian* arose under the computer program exclusion, but as with its previous decision in *Aerotel* the Court gave general guidance on section 1(2). Although the Court approached the question of excluded matter primarily on the basis of whether there was a technical contribution, it nevertheless (at paragraph 59) considered its conclusion in the light of the *Aerotel* approach. The Court was quite clear (see paragraphs 8-15) that the structured four-step approach to the question in *Aerotel* was never intended to be a new departure in domestic law; that it remained bound by its previous decisions, particularly *Merrill Lynch*⁴ which rested on whether the contribution

¹ <http://www.ipo.gov.uk/pro-types/pro-patent/p-law/p-pn/p-pn-computer.htm>

² *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371; [2007] RPC 7

³ *Symbian Ltd v Comptroller-General of Patents*, [2009] RPC 1

⁴ *Merrill Lynch's Appn.* [1989] RPC 561

was technical; and that any differences in the two approaches should affect neither the applicable principles nor the outcome in any particular case.

11. Subject to the clarification provided by *Symbian*, it is therefore appropriate to proceed on the basis of the four-step approach explained at paragraphs 40–48 of *Aerotel* namely:

- (1) *Properly construe the claim.*
- (2) *Identify the actual contribution (although at the application stage this might have to be the alleged contribution).*
- (3) *Ask whether it falls solely within the excluded matter.*
- (4) *If the third step has not covered it, check whether the actual or alleged contribution is actually technical.*

Applying the Aerotel test

Step 1 – Properly construe the claim

12. No issues of construction arise. The claim is clear. The claimed invention defines a computer system arranged to execute a method of generating an order lifecycle of related orders, the orders being uniquely identified based on a CAT identifier. The generation of an order lifecycle includes determining linkages between pairs of orders, wherein the linkages represent a hierarchical relationship of a parent order and a child order and are determined by determining daisy-chain linkages between the pairs of orders. The method signals an error when the order lifecycle comprises an order having a characteristic (from the list defined in the claim) indicating that an error may have occurred and then outputs a reporting presentation including the order lifecycle.

Step 2 – Identify the actual contribution

13. Jacob LJ addressed this step in *Aerotel/Macrossan* where he noted:

“43. The second step — identify the contribution — is said to be more problematical. How do you assess the contribution? Mr Birss submits the test is workable — it is an exercise in judgment probably involving the problem said to be solved, how the invention works, what its advantages are. What has the inventor really added to human knowledge perhaps best sums up the exercise.”

14. Jacob LJ goes on to say that in the end:

“the test must be what contribution has actually been made, not what the inventor says he has made”.

15. The application has been searched. That search revealed that methods for creating a lifecycle of a uniquely identifiable product using transactional information from a number of databases is known, at least from document US 2005/0278296 A1. The contribution lies outside of this known subject matter.

16. The contribution identified in the applicant's letter of 17th August 2021 is:

'a significantly enhanced computer system that can create a CAT for billions of events...the CAT processor processes 100 billion events within four hours to determine an order lifecycle for the events and determine whether errors exist in the event data and/or the order lifecycle'

17. Following amendment of the claims, the applicant points out in their letter of 5th November 2021 that:

'Importantly, the independent claims now include the step of signalling an error in the order lifecycle when the order lifecycle comprises at least one of a number of logical contradictions, such as a single order with conflicting classifications, or wherein the lifecycle lacks a necessary type of order.'

18. The applicant further states in their letter that:

'Crucially, this method of error detection is able to detect not only logical inconsistencies in the data (where the received data corresponds to the source of the data without errors)...but would also be able to detect other types of errors introduced due to technical processes. The system of claim 1 can, in some situations, also detect the presence of corrupt or missing data in the received plurality of orders.'

19. The applicant goes on to state that:

'Thus, the system of claim 1 is able to use the semantic content of the data, which has meaning in a business method sense, in order to perform a verification of data integrity, which is a well-known technical process.'

20. While the applicant does concede that *'these benefits do not seem to be explicitly described in the specification'*, they consider that they would however *'inevitably be present in the systems and methods of the independent claims'*.

21. In conclusion, the applicant considers the contribution to lie in the system of claim 1 being *'more technically resilient'* and *'better able to verify the integrity of received data by analysing the logical content of the data'*.

22. The examiner, in their pre-hearing report dated 19th November 2021, noted first and second contributions: *"a consolidated audit trail (CAT) for computerized trading is produced and maintained in an electronic matter"* and the *"method for generating a CAT involves signalling a user when potential errors in the data are detected, thus allowing for verification of the integrity of received data"*.

23. Having considered the prior art and the applicant's and examiner's assessments, I consider that the contribution lies in an improved computer implemented method for generating an order lifecycle of related orders by

determining linkages representing a hierarchical relationship of parent and child orders, wherein the method includes an improved method for detecting errors in received data representing the orders and a step of outputting this information to facilitate correction of the errors.

Steps 3 and 4 – Ask whether it falls solely within the excluded matter and check whether the actual or alleged contribution is actually technical

24. I will consider steps 3 and 4 together.

25. Lewison J (as he then was) set out five signposts *AT&T/CVON*⁵ that he considered to be helpful when considering whether a computer program makes a technical contribution. In *HTC*⁶ the signposts were reformulated slightly in light of the decision in *Gemstar*⁷. The signposts are:

- i. Whether the claimed technical effect has a technical effect on a process which is carried on outside the computer.
- ii. Whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run.
- iii. Whether the claimed technical effect results in the computer being made to operate in a new way.
- iv. Whether the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer.
- v. Whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

26. It is important to stress that these signposts are just that. They are not barriers or hurdles that need to be individually or collectively overcome by the applicant. They are rather a non-exhaustive list of some of the factors that can indicate in some cases whether a particular contribution may be technical.

27. The applicant submits in their letter of 5th November 2021 that at least signposts i), iv) and v) point in favour of patentability.

28. In relation to the first signpost, the applicant considers that:

"the technical effect of the present invention can effectively improve the ability of a network to verify the integrity of data sent through that network" and thus "the present invention improves network capabilities that occur outside a lone computer system"

29. As noted by the examiner in their pre-hearing report, the guidance of paragraph 30 of *Lantana*⁸ is relevant here. This guidance notes that the 'computer' in this case would include the network since it is entirely conventional to connect a computer system to a wider network to exchange

⁵ *AT&T Knowledge Venture/CVON Innovations v Comptroller General of Patents* [2009] EWHC 343 (Pat); [2009] FSR 19

⁶ *HTC v Apple* [2013] EWCA Civ 451

⁷ *Gemstar-TV Guide International Inc v Virgin Media Ltd* [2009] EWHC 3068 (Pat); [2010] RPC 10

⁸ *Lantana* [2013] EWHC 2673 (Pat)

data. The verification of the integrity of the data is performed using a program for a computer. No technical effect on a process which is carried on outside the computer is present.

30. In relation to the fourth signpost, the applicant considers that:

"the present invention allows the computer to run more effectively as a computer by way of improving the computer's ability to verify the data integrity of a received plurality of orders" and "the system and methods of the independent claims increase the capabilities of a technical verification process that normally occurs at a fine-scale architectural level of a computer or network"

31. It is the computer program that delivers the improvement in the verification of data integrity. That program is specific to the application and the data being processed hence it does not cause the computer itself to run more efficiently and effectively.

32. In relation to the fifth signpost, the applicant considers that:

"the problem of how to detect more effectively missing, corrupt and inaccurate data in a received plurality of orders is overcome directly by the methods and systems of the independent claims filed herewith"

33. As noted by the examiner in their pre-hearing report, this stated problem does seem to be solved by the invention. The problem is solved by checking certain characteristics in an order lifecycle and, if appropriate, signalling an error. However, the characteristics being checked are specifically selected to gain information about the order lifecycle for the purposes of ensuring that accurate information about the orders is available, and ultimately for the purpose of fulfilling the orders and enabling subsequent analysis. This is considered to amount to a method of doing business and hence, as concluded by the examiner, the problem being solved is not technical in nature.

34. In their earlier letter of 17th August 2021, the applicant also sought to rely on signpost iii). This argument has not been pursued in the last correspondence from the applicant and they were I believe right not to do so. For completeness I note that I am satisfied for the reasons already provided by the examiner that signpost iii) is of no assistance here.

35. Finally taking a step back and looking at the invention as a whole, I am satisfied that the contribution as I have identified it, does not provide a technical contribution.

Conclusion

36. Having carefully considered the arguments, I am of the view that the contribution falls solely within the matter excluded under section 1(2) as a method for doing business and as a program for a computer as such. I can see nothing in the specification that could be reasonably be expected to form

the basis of a valid claim. I therefore refuse this application under section 18(3).

Appeal

37. Any appeal must be lodged within 28 days after the date of this decision.

Phil Thorpe

Deputy Director, acting for the Comptroller