



PATENTS ACT 1977

APPLICANT	Luther Systems
ISSUE	Whether GB1917570.2 complies with Section 1(2) of the Patents Act 1977
HEARING OFFICER	Stephen Brown

DECISION

Introduction

- 1 Patent Application GB1917570.2 is the national phase of a PCT application published as WO2018/204541 claiming a priority date of 2nd May 2017. It was subsequently republished as GB2576461 on 19th February 2020.
- 2 Despite several rounds of correspondence, the applicants have been unable to convince the Examiner that the application is allowable under Section 1(2) of the Act. As a consequence, they were offered a hearing before a senior officer of the IPO. The hearing was held on 1st September and was attended by the inventor Sam Wood and his attorney Ben Wadsworth of Wilson Gunn. I was assisted by Mr Nigel Hanley. The examiner, Mr Philip Rogers, was also present.
- 3 I would like to thank Mr Wadsworth for his skeleton arguments and Mr Wood for his assistance in explaining the system of the application.

The Application

- 4 The application concerns the use of “blockchain” technology to manage a derivative contract. In the application, an interest rate swap is given as a specific example of such a financial contract. The system works by using a management computer which uses “blockchain” technology to hold details of pending events in the contract and thereby to generate a net amount for payment under the contract. In essence, the system is a way of managing an interest rate swap with all communication being done electronically and assurance being provided by the “blockchain” thus avoiding the need for a trusted third party.

The Claims

- 5 The latest claims on file are those dated 27th June 2022. There are two independent claims, one to a system and another to a method:

Claim 1

A system comprising:

A plurality of distributed ledger nodes that operate in a peer to peer network, each distributed ledger node being a computer system that hosts a blockchain component that stores a distributed ledger shared between the plurality of distributed ledger nodes that stores transaction and a smart contract for a derivative contract, and

A management computer system, connected to each of a plurality of distributed ledger nodes, the management computer system having a processor, memory and a plurality of instructions configured to:

Negotiate using the distributed ledger, a particular derivative smart contract between one or more counterparties without a trusted third party;

Determine a net payment amount from the negotiated particular derivative smart contract;

Generate a blockchain markup language (BCML) object including a pending event list for a particular derivative smart contract, a past event list for the particular derivative smart contract, an account balance of each counter party and the net payment amount for the particular derivative smart contract;

Store the BCML object in the blockchain;

Generate chaincode from the BCML object for execution on the blockchain;

Execute, using the distributed ledger, the particular derivative smart contract without a trusted third party using the generated chaincode whose execution is performed as a function of only the BCML object for the particular derivative smart contract and generate a net event that includes net payment amount for the executed particular smart contract;

Query the BCML object to dynamically generate a swap view based on the executed chaincode;

And display to the user, a swap view with details of the particular derivative smart contract including the net event.

Claim 17

A method, comprising:

Hosting a blockchain component and storing a distributed ledger, in a plurality of distributed ledger nodes, each distributed ledger node being a computer system that hosts the blockchain component that stores the distributed ledger shared between the plurality of distributed ledger nodes that stores transactions and a smart contract for a derivative contract;

Negotiating using the distributed ledger, a particular derivative smart contract between one or more counterparties without a trusted third party;

Determining a net payment amount from the negotiated particular derivative smart contract;

Generating a blockchain markup language (BCML) object including a pending event list for a particular derivative smart contract, a past event list for the particular derivative smart contract, an account balance of each counter party and the net payment amount for the particular derivative smart contract;

Storing the BCML object in the blockchain;

Generating chaincode from the BCML object for execution on the blockchain;

Executing, using the distributed ledger, the particular derivative smart contract without a trusted third party using the generated chaincode whose execution is performed as a function of only the BCML object for the particular derivative smart contract and generate a net event that includes net payment amount for the executed particular smart contract;

Querying the BCML object to dynamically generate a swap view based on the executed chaincode;

And displaying to the user, a swap view with details of the particular derivative smart contract including the net event.

The Law

- 6 The section of the Act concerning inventions excluded from patentability is Section 1(2), which reads:

“1(2) It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of –

(a)...

(b)...

(c) **a scheme, rule or method for performing a mental act, playing a game or doing business or a program for a computer;**

(d) ...

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

- 7 In order to decide whether an invention relates to subject matter excluded by Section 1(2), the Court of Appeal has said that the issue must be decided by answering the question of whether the invention reveals a technical contribution to the state of the art. The Court of Appeal in *Aerotel/Macrossan*¹ set out the following four-step approach to help decide the issue:

1) *Properly construe the claim;*

¹ *Aerotel Ltd v Telco Holdings Ltd (and others) and Macrossan’s Application* [2006] EWCA Civ 1371

- 2) *Identify the actual (or alleged) contribution;*
- 3) *Ask whether it falls solely within the excluded subject matter;*
- 4) *Check whether the actual or alleged contribution is actually technical in nature.*

8 The operation of the approach is explained at paragraphs 40-48 of the judgment. Paragraph 43 confirms that identification of the contribution is essentially a matter of determining what it is the inventor has really added to human knowledge, and involves looking at substance, not form. Paragraph 47 adds that a contribution which consists solely of excluded matter will not count as a technical contribution.

9 The case law on computer implemented inventions has been further elaborated in *AT&T/CVON*² which provided five helpful signposts to apply when considering whether a computer program makes a relevant technical contribution. In *HTC v Apple*³, Lewison LJ reconsidered the fourth of these signposts and felt that it had been expressed too restrictively. 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 make the computer a better computer in the sense of running more efficiently and effectively as a computer; and*
- v) *whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.*

Analysis

10 This application has two independent claims. For the purpose of this decision, I will focus my analysis on the system of claim 1. Specifically, claim 17 is a corresponding method claim and any conclusions I come to regarding claim 1 will apply to claim 17 *mutatis mutandis*.

11 The first step in the Aerotel test is to construe the claim. Although on the face of it the claim may seem difficult to construe, I do not believe that is the case. The key is

² *AT&T Knowledge Ventures LP and CVON Innovations Limited v Comptroller General of Patents* [2009] EWHC 343

³ *HTC v Apple* [2013] EWCA Civ 451

in understanding that the derivative in question is an “interest rate swap”. It is my understanding that this is a contract between two parties to swap a stream of future interest payments on a specified principal amount. Usually, the swap involves the exchange of one fixed and one floating rate though both can be a floating rate (a basis swap), to reduce the parties’ exposure to fluctuations in the interest rates.

- 12 A key part of any swap is that they involve future payment events. At each of these events a “net payment” is calculated based on the current market rate and the rates of each party.
- 13 What the applicants have done in this case is use “blockchain” technology to allow the calculation of the “net payment” to occur without the need for a trusted third party or other intermediary. In effect, by taking account of the blockchain’s ability to provide a secure and trusted platform they have removed the need for a trusted third party.
- 14 The claim can therefore be construed as a means of using the block chain to administer an interest rate swap and to determine the net payment for a future event without use of a trusted third party.
- 15 What then is the contribution? The examiner and the applicant appear to accept the contribution set out by the applicant on 27th June 2022. That is:

A computer implemented method of using a distributed ledger wherein the ledger stores transactions and comprises nodes, wherein each node hosts a blockchain component that stored the distributed ledger to negotiate a derivative smart contract, then generating a blockchain markup language (BCML) object that includes information for the derivative smart contract and then executing the derivative smart contract without a trusted third party using chaincode which (is) performed only as a function of the BCML object.

- 16 However, in his skeleton arguments, Mr Wadsworth sought to distinguish the contribution from that of the examiner by referring to the role and the functions of the management computer in the system. It was his view that this made the invention “clearly more than just using blockchain”. He sees the contribution as one of how to improve the management computer for an interest rate swap process.
- 17 It is clear that there is a disagreement in determining the contribution with the examiner and the applicant focussing on specific elements of the claim. At this point, I will take a step back and view the claim both as a whole and in line with how I have construed it. To that end the contribution is, in my view:

A computer implemented method of managing the use of the blockchain to negotiate an interest rate swap using a management computer.

- 18 I think at this point I should make clear that I do not believe that the fundamental operation of the block chain is part of the contribution. Blockchain is now a well known technology and I believe that the contribution lies in using it in the management of an interest rate swap.

- 19 The next step is to consider whether this contribution lies wholly in an excluded area. There are potentially two exclusions at play here. With the focus of the system being for managing interest rate swaps, the primary concern is whether, or not, it is a method of doing business, as such. Also, as it is clearly implemented in software, there is the question of the computer program exclusion too.

Business Method

- 20 There are two main sources of law regarding the method of doing business exclusion. Firstly, there is the decision of the Court of Appeal in Merrill Lynch's Application⁴ where FOX LJ in delivering the judgement said, at page 569:

*“Now let it be supposed that claim 1 can be regarded as a producing a new result in the form of a technical contribution to the prior art. That result, whatever the technical advance may be, is simply the production of a trading system. It is a data-processing system for doing a specific business, that is to say making a market in securities. The end result, therefore, is simply a “method ... of doing business”, and is excluded by section 1(2)(c). **The fact that the method of doing business may be an improvement on previous methods of doing business does not seem to be material. The prohibition in section 1(2)(c) is generic; qualitative considerations do not enter into the matter.** The section draws no distinction between the method by which the mode of doing business is achieved. If what is produced in the end is itself an item excluded from patentability by section 1(2), the matter can go no further. Claim 1, after all, is directed to “a data processing system for making a trading market”. That is simply a method of doing business. A data processing system operating to produce a novel technical result would normally be patentable. But it cannot, it seems to me, be patentable if the result itself is a prohibited item under Section 1(2). In the present case it is such a prohibited item”.*

(Emphasis Added)

- 21 More recently, this approach was endorsed in *Halliburton Energy Services*⁵ where, at paragraph 35, it was said:

“The business method cases can be tricky to analyse by just asking whether the invention has a technical effect or makes a technical contribution. The reason is that computers are self-evidently technical in nature. Thus, when a business method is implemented on a computer, the patentee has a rich vein of arguments to deploy in seeking to contend that his invention gives rise to a technical effect or makes a technical contribution. For example, the computer is said to be a faster, more efficient computerized bookkeeper than before and surely, says the patentee, that is a technical effect or technical advance. And

⁴ Merrill Lynch's Application [1989] RPC 561

⁵ *Halliburton Energy Services* [2011] EWHC 2058

so it is, in a way, but the law has resolutely sought to hold the line at excluding such things from patents.”

- 22 There is a clear line of argument in both these cases that a business method is not allowable. Specifically, if the end result is a business method, then the application is a method of doing business and the manner by which that is done will not help it. This was first said in Merrill Lynch and reiterated in Halliburton. In the current case, this is a system and method of administering an interest rate swap. This a business method implemented on a computer and that must be excluded as a method of doing business.
- 23 The attorney has argued that the system relies on a network of computers which can implement the proposed system and that these are technical features that provide benefits including better security, increased transaction settlement speed and reduced costs. Further benefits are that reconciliation is eliminated and regulators can have real time access.
- 24 However, when you read the claim and consider the purported benefits, there is no doubt in my mind that it is a business method and nothing more. The computer(s) used are standard, as is the blockchain itself. What the contribution represents is a ‘better’ system to administer interest rate swaps. It would be impossible to describe this as anything other than a business transaction. Merrill Lynch makes clear that the business method exclusion is generic. This is reinforced in Haliburton. What we have here is a method of doing business specifically one for managing interest rate swaps. That it may involve a new system is open to debate, but it remains at its heart a method of doing business and is therefore excluded under Section 1(2) (c) of the Act.

Program for a Computer

- 25 Having concluded that the application is excluded as a method of doing business, there is no need for me to consider the computer program exclusion. However, for the sake of completeness, I shall consider it briefly.
- 26 In his arguments Mr Wadsworth referred me to signposts (iii) and (v) in support of his view that the application is not a computer program. With regard to signpost (iii) he argues that the system operates without third party oversight and non-deterministically. This is as maybe, but these features do not mean the computer itself operates in a new or different way. However, you look at it, it appears to be just a computer running a program. That is not a different or new way of operating the computer itself.
- 27 Analysis of signpost (v) is often difficult and in many cases it can be inconclusive at best. The argument Mr Wadsworth makes is that the problem being solved relates to the operation of a computer system in so far as it relates to how to operate multiple validating nodes despite not being able to guarantee resource access remains the same at all times.

- 28 In considering this view, it is again essential to look at the claim in its entirety and in context. The claim is about manging an interest rate swap process by using blockchain. At no time does it mention or even give a hint to the problem as set out by Mr Wadsworth. If there is a problem, it is one of managing an interest rate swap without the need for a trusted third party. That is a business problem, not a technical one, so there is little assistance to the applicant from signpost (v). I therefore consider that the application is also excluded as a program for a computer, as such.
- 29 The final step of the *Aerotel*¹ test is to check whether the contribution is technical in nature. Since I have decided that it does not have a technical effect beyond that of a business method enabled by a program running on a computer it also fails this step of the test. I thus decide that the independent claims are excluded under section 1(2).

Conclusion

- 30 For the reasons set out above, I consider that the invention as defined in claims 1 and 17 is excluded under Section 1(2)(c) as a method of doing business and as a program for a computer, as such. Having reviewed the application, I do not consider that any saving amendments are possible. I therefore refuse the application under section 18(3).

Appeal

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

Dr Stephen Brown

Deputy Director, acting for the Comptroller