Intellectual Property Office

BL O/320/16

06 July 2016

PATENTS ACT 1977

APPLICANT	Fisher-Rosemount Systems, Inc.
ISSUE	Whether Patent application GB1014179.4 complies with Section 1(2)
HEARING OFFICER	Mrs S E Chalmers

DECISION

Introduction

1 Patent application number GB 1014179.4 was filed on 25 August 2010 claiming a priority date of 26 August 2009 from an earlier US application. It was published as GB 2473124 on 2 March 2011. Despite several rounds of amendment and argument the applicant has been unable to convince the examiner that the invention is patentable under Section 1(2). The applicant accepted an offer of a hearing to resolve the matter - this took place on 26 May 2016 by video link and was attended by the applicant's attorney Russell Sessford of Forresters. Adrian French (examiner) and Mr Nikki Dowell (assistant) were also present.

2 Shortly before the hearing, the applicant filed skeleton arguments setting out a main request relating to the claims of the application currently on file and First and Second auxiliary sets of claims to be considered (in that order) if the main set were found to be unallowable. I am grateful for the skeleton arguments presented before the hearing and for the list of decisions referred to at the hearing which I have taken full account of in reaching my decision.

The invention

3 The application is entitled "Methods and apparatus to manage testing of a process control system". Process control systems include process controllers to receive process measurements made by the field devices, process this information to implement a control routine, and generate control signals that are sent to the field devices to control the operation of the process. The process control routines may require periodic testing to verify the routines are performing as specified but this conventionally requires the process control system be suspended so that the test can be performed. The present application provides a method which includes generating a test application from a process control routine including at least one test; monitoring operation of the process control routine, determining if the operation of the process control routine includes an execution of a portion of the process control routine that is substantially similar to the at least one test, and updating the

test application by indicating that the at least one test has been performed. By automatically updating the test application, the method is said to optimize test time by documenting which process control routine tests do not need to be verified because they have been effectively verified during the normal operation of the process control system.

4 The main request concerns the set of claims was filed on 14 July 2015 which has three independent claims: claim 1 to a method to manage testing of a process control system comprising generating a test application from a process control routine; claim 10 to an equivalent apparatus to manage testing of a process control system without the feature of generating a test application from a process control routine which is consigned to dependent claim 11 and claim 22 to a machine-accessible medium having instructions stored thereon that, when executed, cause a machine to perform the method. At the hearing Mr Sessford agreed that the independent claims stand or fall together so I will restrict my consideration to claim 1 which reads:

> *1. A method to manage testing of a process control system while an associated process is operating, the method comprising:*
> *generating a test application from a process control routine, the test application including at least one test that is to be performed within a time period;*
> *monitoring an operation of the process control routine while the associated process is operating;*
> *determining if the operation of the process control routine during the time period includes an execution of a portion of the process control routine that is substantially similar to the at least one test; and*
> *updating the test application by indicating that the at least one test has been performed within the time period, when operation of the process control routine is determined to include execution of the portion of the process control routine that is substantially similar to the at least one test.*

5 Each of the First and Second auxiliary claim sets filed on 20 May 2016 also includes three independent as those of the main request but with additional features. Claim 1 of the First auxiliary claim set additionally refers to (emphasis added):

> *1. A method ....comprising:*
> *generating a test application from a process control routine, the test application including test<u>s</u> that <u>are</u> to be performed within a time period;*
> *...;*
> *<u>generating a test plan of tests to be conducted by an operator at verification times;</u>*
> *<u>filtering the at least one of the tests from the tests in the test plan; and</u>*
> *<u>completing the test plan.</u>*

6 Claim 1 of the Second auxiliary claim set additionally (as compared to the main request) refers to:

> *1. A method to manage testing of a process control system while an associated process is operating <u>to reduce the experience of preventable failures</u>, the method comprising....*

7 In each claim set the dependent claims are the same and no specific arguments have been advanced with respect to any of these claims.

The law

8 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."*

9 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;*
> *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.*

10 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.

11 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;*

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

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.

12 Prior to the hearing Mr Sessford also drew my attention to the hearing officer's decision in *Boeing's Application*[4].

Application of the Aerotel approach – main request

Step 1: Properly construe the claim

13 Mr Sessford and the examiner agree regarding the proper construction of claim 1 which is straightforward and poses no problems. Claim 1 concerns a method to manage testing of a process control system while an associated process is operating which includes generating a test application from a process control routine including at least one test; monitoring operation of the process control routine, determining if the operation of the process control routine includes an execution of a portion of the process control routine that is substantially similar to the at least one test, and updating the test application by indicating that the at least one test has been performed. I agree.

Step 2: Identify the actual (or alleged) contribution

14 In his skeleton argument Mr Sessford identified the contribution as being "the provision of a mechanism by which a process control system can be tested with reduced disruption to the operation of the process which the system is controlling". He elaborates that the contribution "is, therefore, found in reduced disruption to the operation of the process. The process is a physical process occurring by virtue of the operation of the physical valves, pipework, tanks, mixers, etc., of the process plant".

15 So what the inventor has added to the stock of human knowledge? This is clearly not the hardware since the hardware utilised in the present application is conventional (see paragraphs [00153] to [00160] for example). In addition, there is no interaction between the hardware and the software for it to be said there is a contribution made by the system as a whole. In my view, the contribution relates to a method by which process control routines of a process control system are tested while an associated process is running which saves testing time and may reduce disruption to the operation of the process which the system is controlling.

16 I use the term "may" to reflect that the specification does not refer to the described invention as reducing disruption. Instead it refers to saving or optimizing test time and that previous methods were time consuming for process system operators and may result in a loss of productivity. In practice, such a reduction will only occur in

[4] BL O/312/15

process systems which operate continuously when testing, which requires the process to be suspended, is performed (and when at least some tests are identified as having been performed during normal operation of the process). Where the process system does not operate continuously then testing would likely be conducted in scheduled downtime and not disrupt operation of the process. Equally if the process does not need to be suspended to conduct testing then there is no disruption.

Steps 3 and 4: Ask whether it the contribution falls solely within the excluded subject matter and whether it is technical

17 The examiner has argued that the invention is no more than computer program for managing testing of a process control system. Claim 22 defines a computer program to perform the method of claim 1 and it seems that the method of claim 1 and apparatus of claim 10 would ordinarily be implemented by a computer program as a matter of practical reality. I must therefore consider whether this computer program makes a relevant technical contribution.

18 Mr Sessford directed my attention to paragraph 27 of the hearing officer's decision in *Boeing's Application* which reads:

> *27 ...However, aircraft maintenance is an inherently technical process and an improved method of identifying potentially faulty components during aircraft maintenance is more than just an administrative procedure or a resource management activity, as it has real implications for improved aircraft safety. As such, the contribution made by the invention is considered to be more than a mere business method.*

19 It follows, he said, that process control system maintenance is also an inherently technical process and an improved method of identifying potentially faulty components in a process control system is more than just an administrative procedure or a resource management activity, as it has real implications for improved process control system safety.

20 I do not disagree, however it is trite law that just because it is possible to construct a generalised category which includes both the claimed invention and a previous decision in which a claim was held to be patentable, does not help this enquiry. It shows that such things can be patentable in some cases but it does not necessarily follow that the invention in this – or any other - case is patentable[5]. What matters is that my decision must be based on the law as applied to the facts of this case.

21 Claim 1 of Boeing's application is directed to a method to discard a rogue component from an aircraft system and comprises the step of enabling the discarding of the rogue component when an alert to the user indicates this. There is no equivalent step in the present method; even if there were, I cannot simply transpose the reason for allowing *Boeing's Application* to this application without undertaking the proper legal analysis. The contribution here is directed to testing process control routines (software) in a way which saves operator time; it does not, explicitly, identify and

[5] See paragraph 17 of Lantana v Comptroller-General of Patents [2013] EWHC 2673 (Pat)

alert the operator of rogue components (field devices) within the process control system which require maintenance. The facts of these cases are therefore different.

22 Considering the signposts Mr Sessford suggests that the contribution satisfies the first of the *AT&T/CVON* signposts as the invention reduces disruption to the process and process plant and therefore has a technical effect outside of the computer. He goes on to acknowledge that the claimed invention of the main request does not include the step of subsequently performing any tests, i.e. after the test application is updated, but submits that such a limitation is not required. No arguments were advanced by Mr Sessford with regards to the other signposts and I would agree that none are helpful to the applicant in this case.

23 Setting aside whether or not such a limitation is required, the actual contribution I have identified provides for saving operator time when testing is performed. The saving is achieved by marking tests in the test application that would effectively duplicate a substantially similar event encountered during normal operation as completed. In preferred embodiments the operator is prompted to perform a test plan (generated from the test application and which may be filtered to remove those tests that have been completed during normal operation) of the required tests. As far as I can see, the method does not impact on the operation of the process.

24 In conclusion I therefore find that the invention defined by the independent claims of the main request are excluded by Section 1(2) of the Act as a computer program as such.

Application of the Aerotel approach – First auxiliary request

Step 1: Properly construe the claim

25 At the hearing, Mr Sessford said that the first auxiliary claims were to additionally provide for "performing any tests which may be needed in addition to those identified as having been completed as part of the normal operation of the process". However as the method of claim 1 is directed to manage testing "…while an associated process is operating…." it follows that all the following steps are to be conducted during normal operation of the process including the final step of "completing the test plan".

26 Whilst the phrase "completing the test plan" may be intended to provide for suspending the process and performing any tests which were not identified as completed as part of the normal operation the claim does not clearly and unambiguously say so. This is because it is not clear what the "tests" referred to in the phrase "generating a test plan of tests" are intended to be. For example, is the test plan generated from the test application (paragraph [0013]) or are the two unrelated? The "filtering" step specifies "the at least one of the tests" and so presupposes the former. It is also not clear what limitation the phrase "to be conducted by an operator at verification times" imposes on the claim; if the step of "completing the test plan" is intended to be conducted by an operator at verification times then it need not be performed "while an associated process is operating" as required by the claims.

Step 2: Identify the actual (or alleged) contribution

27 Mr Sessford suggests that the actual contribution of the independent claims of the first auxiliary request is the same as for the main request. I agree.

Steps 3 and 4: Ask whether it the contribution falls solely within the excluded subject matter and whether it is technical

28 In view of the comments under step 1 above, I find that contribution still relates solely to a computer-implemented method and the same conclusion as the main request must apply to the first auxiliary request without needing any further consideration.

29 In conclusion I find that the invention defined by the claims of the first auxiliary request are excluded by Section 1(2) of the Act as a computer program as such.

Application of the Aerotel approach – Second auxiliary request

Step 1: Properly construe the claim

30 The second auxiliary claims are directed to the same method as the main request but this time qualified by being to "reduce the experience of preventable failures" which is said to be based on the disclosure in paragraph 0049 of the specification.

31 Paragraph 0049 refers to a specific situation where an operator without proper training improperly performs a test and/or incorrectly records the results of a test resulting in an unverified routine and/or process control field devices. It is said that over time, the unverified routine or field devices may experience a preventable failure that results in a decline of product quality, process quality, and/or a stoppage of the process to correct the failure. Elsewhere in the specification the embodiments address this problem by using an identification value provided by the operator to cross-reference a database with training records to determine if the operator has permission, or is qualified to, perform the test plan. This is a feature of dependent claim 8.

32 The amendments to the independent claims of the second auxiliary claim set may therefore add matter by intermediate generalisation if the phrase "reduce the experience of preventable failures" means anything more than what the skilled reader would understand the term "testing" to encompass. I find that the skilled reader would construe the term "testing" as comprising that the method is to "reduce the experience of preventable failures" and that therefore there is no difference in scope between claim 1 of the second auxiliary request and the main request.

Step 2: Identify the actual (or alleged) contribution

33 Mr Sessford proposes that the actual contribution of the independent claims of the second auxiliary request is the same as the main request. I agree.

Steps 3 and 4: Ask whether it the contribution falls solely within the excluded subject matter and whether it is technical

34 In view of the comments under step 1 above, I find that the same conclusion as the main request must apply to the second auxiliary request without needing any further

consideration. The invention defined by the claims of the second auxiliary request is excluded by Section 1(2) of the Act as a computer program as such.

Decision

35 I have found that the contribution made by the invention defined by the claims of each of the main request, first auxiliary request and second auxiliary request falls solely in matter excluded from patentability by virtue of Section 1(2) of the Act, namely as a program for a computer as such. I therefore refuse this application under Section 18(3).

Appeal

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

Mrs S E Chalmers
Deputy Director, acting for the Comptroller