



20 November 2009

PATENTS ACT 1977

APPLICANT Fisher-Rosemount Systems, Inc.

ISSUE Whether patent applications numbers
GB 0814367.9, GB 0814366.1 and GB
0814365.3 comply with section 1(2)

HEARING OFFICER B Micklewright

DECISION

Introduction

- 1 This decision concerns whether the inventions claimed in the three patent applications GB 0814367.9 (“the ‘367 application”), GB 0814366.1 (“the ‘366 application”) and GB 0814365.3 (“the ‘365 application”) relate to excluded subject matter.
- 2 These applications were lodged on 6 August 2008 and claimed divisional status from patent application GB0621389.6 (“the parent application”). The requests for divisional status were allowed and the applications therefore have as their filing date 4 May 2005 and claim a priority date of 4 May 2004 from an earlier US application. They were published on 19 November 2008 as GB 2449380 A, GB2449379 A and GB2449378 A respectively.
- 3 The parent application proceeded to a hearing which took place on 19 May 2009. The hearing officer, Mr Phil Thorpe, refused the application because the claimed invention was excluded from patentability as it related to a computer program as such. His decision was issued as BLO/214/09 on 17 July 2009 and is available from the Intellectual Property Office’s website at <http://www.ipo.gov.uk/p-challenge-decision-results.htm>. The claims which are now present in these divisional applications were not considered by Mr Thorpe.
- 4 After an initial examination report on each of the three divisional applications, the examiner suggested that further processing of these applications be put on hold until the decision was issued on the parent application. Following the issue of that decision the examiner issued further examination reports on each of these three divisional applications maintaining an objection that the claimed inventions were

excluded from patentability because they related to a computer program as such. The applicant disagreed and requested a hearing. The matter therefore came before me at a hearing on 23 September 2009 at which the applicant was represented by their patent attorney Dr Alex Lockey. The examiner Mr Jake Collins also attended.

The invention

- 5 The inventions relate in general terms to the same as that of the parent application, namely to configuring and modifying process control systems. Mr Thorpe summarised the background to the invention in paragraphs 5-8 of his decision, as set out below.

5. The invention relates to configuring and modifying what the applicant refers to broadly as process control systems. Such systems can be used in industrial plants for example in the chemical and petroleum industries. These processes typically involve using process controllers and control routines to control a number of field devices such as valves, switches and sensors etc.

6. According to the application, such process control systems are typically configured using configuration applications that enable a system engineer to define how each field device should function. When a field device is added to a particular process or each time a change is made to the process, an engineer may generate a new control program or new configuration data or may update or modify an existing control program. Each process may use a large number of field devices, controllers, and/or other control devices and, thus, a control program may include large amounts of configuration data.

7. Some known process control systems provide integrated editors that enable users to create and/or update control programs. However, these known editors typically display data in a manner that does not reveal how process control data associated with one field device relates to the process control data of another field device. Furthermore, the underlying database infrastructure does not show the set of relationships between the control system, the process, material flows and compositions, equipment, devices, and the operational displays that are used to operate, maintain, and diagnose the overall system. In other words, these known editors typically show process control data without revealing its relationship to the overall system.

8. As newer, improved process control system applications become available, companies may upgrade their older process control system applications. Upgrading or migrating to different process control system applications is often tedious because of incompatibilities between older process control system applications and newer process control system applications or incompatibilities among process control system applications provided by different vendors. For example, data formats may

differ between different process control system applications. As a result, migrating existing process control data often requires engineers to migrate the data manually or to develop custom scripts or programs that can convert prior custom data to data that is formatted suitable for use with the new process control system applications.

- 6 The inventions in the divisional applications all relate to enabling different systems which use different data formats to modify process control data by converting it first to a “format neutral” intermediary data format where it can then be converted to another proprietary format for use by another system (see figures below). See paragraph 9 of Mr Thorpe’s decision on the parent application for further details.

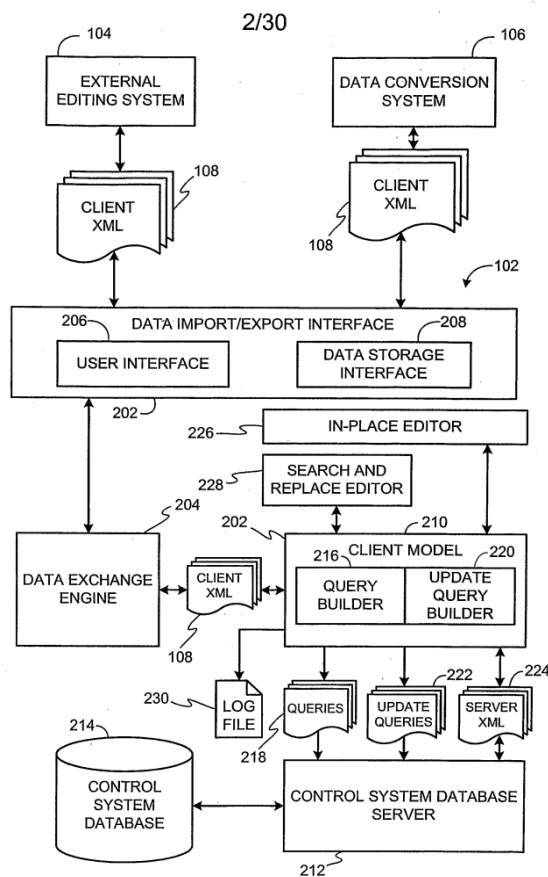


FIG. 2

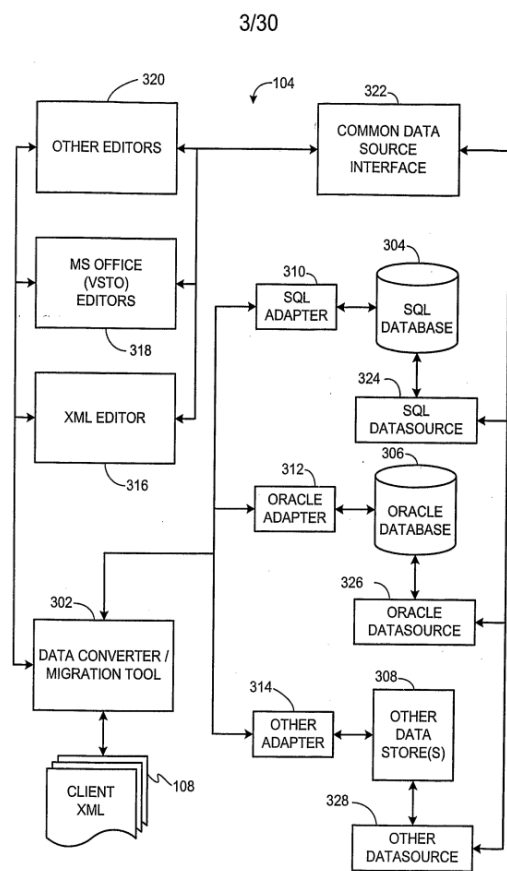


FIG. 3

The '367 Invention

- 7 The invention claimed in the '367 application seeks to overcome the issues referred to above by providing an external editing system which has a database in which is stored the process control data associated with a first device (which has a process control system workstation and is used to operated, maintain and diagnose the process control system) in a first data format, the format associated with the external editing system. The editor includes a data converter that

converts the data to an extensible markup language (XML) format so that it can be related to a second device. This enables different systems that may use different data formats to access the process control data by ensuring it is converted into an intermediary XML format. Claim 1 is the only independent claim and reads:

1. An external editing system for modifying process control data of a process control system, the process control data associated with a first device of a process control system having at least one process control system workstation and used to operate, maintain, and diagnose the process control system, the system comprising:

at least one editor to edit the process control data, the editor operating remotely from the process control system workstation and operable to display the process control data in an arrangement that relates the process control data to a second device of the process control system;

at least one database to store the process control data in a first data format;

a database interface communicatively coupled to the editor and the at least one database to communicate information between the editor and the at least one database; and

a data converter communicatively coupled to the editor and the at least one database to convert the process control data from the first data format to an extensible markup language format.

The '366 Invention

8 The invention claimed in the '366 application includes a query builder that generates queries for the database of the external editor. An interface is coupled to the query builder which imports or exports process control data in response to queries generated by the query builder in an XML format. Claim 1 is the only independent claim and reads:

1. An external editing system for modifying process control data of a process control system, the process control data associated with a first device of a process control system having at least one process control system workstation and used to operate, maintain, and diagnose the process control system, the system comprising:

at least one editor to edit process control data, the editor operating remotely from the process control system workstation and operable to display the process control data in an arrangement that relates the process control data to a second device of the process control system;

a database configured to store process control data;

a database server communicatively coupled to the database and the at least one editor and configured to access the process control data in the database;

a query builder communicatively coupled to the database server and configured to generate queries and communicate the queries to the database server to enable the database server to retrieve the process control data from the database based on the queries; and

a data interface communicatively coupled to the query builder and configured to import or export the process control data in an extensible markup language format.

The '365 Invention

- 9 The invention claimed in the '365 application relates to the schemas used in converting the process control data from one format to another. A first schema is associated with a first data format used by an editor. The process control data is obtained in a second data format, e.g. an XML format, associated with a second schema, and is then converted to the first data format based on the first schema and exported to the editor for use by that editor. Claim 1 is the only independent claim and reads:

1. A method of modifying process control data of a process control system, the process control data associated with a first device of a process control system having at least one process control system workstation and used to operate, maintain, and diagnose the process control system, the method comprising:

defining a first schema associated with organizing process control data in a first data format that is used to exchange the process control data between at least one editor and a process control system data manager, the process control system data manager configured to cooperate with one or more process control system applications operating on the at least one workstation to control a process;

obtaining the process control data in a second data format associated with a second schema;

converting the process control data from the second data format to the first data format based on the first schema; and

exporting the process control data and the first schema in the first data format to the at least one editor, the editor operating remotely from the process control system workstation and operable to display the process control data in an arrangement that relates the process control data to a second device of the process control system.

The law

- 10 Section 1(1)(d) of the Patents Act 1977 ("the Act") states that a patent may be granted only for an invention in respect of which the grant of a patent for it is not excluded by subsections (2) and (3) or section 4A. Section 1(2)(c) states that things which consist of "a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer" are not

inventions for the purposes of the Act, but only to the extent that a patent or application for a patent relates to that thing as such.

11 There is a large amount of case law in relation to these provisions. The most significant recent judgments of the Court of Appeal on the matter are *Aerotel Ltd v Telco Holdings Ltd Ors Rev 1* [2007] RPC 7 and *Symbian Ltd's Application* [2009] RPC 1. In *Aerotel* the Court of Appeal reviewed all the previous case law and specified the following four-step test as a methodology of determining whether an invention was excluded from patentability under section 1(1)(d):

- (1) Properly construe the claim;
- (2) identify the actual 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.

12 In *Symbian* the Court of Appeal confirmed that the above test is intended to be equivalent to the prior case law test of “technical contribution”. In the present case I will therefore use the *Aerotel* test and ensure in my consideration of steps (3) and (4) that I determine whether the invention makes a technical contribution.

Assessment

13 Dr Lockey did not at any point argue that Mr Thorpe was wrong in the conclusion he reached and the decision he made in relation to the parent application. I also agree with Mr Thorpe's decision and with his reasoning which supported that decision. I therefore made clear to Dr Lockey that he would have to indicate in each of the three divisional applications in suit how they were distinguished from the invention claimed in the parent application in a way which would render them non-excluded. Mr Thorpe did not explicitly consider the inventions now claimed in these divisional applications in his decision. Although in his conclusion in paragraph 50 of his decision he stated that “I do not think that any saving amendment is possible” this comment was made in relation to the invention under consideration in the parent application and did not necessarily extend to the inventions now claimed in these divisional applications.

Step (1): Properly construe the claims

14 Mr Thorpe construed the phrase “process control data” as referring to the control software and the configuration data that actually runs the physical apparatus and should not be considered to include physical parts of the plant. I will also use this construction of the term “process control data”.

15 Another construction issue arises in the context of the '366 application. Claim 1 of the '366 application includes “a data interface communicatively coupled to the query builder and configured to import or export the process control data in an extensible markup language format”. The system described in Figure 2 and in paragraphs [0058] and [0059] of the description has two separate steps where a conversion to an XML format occurs. The control system database server

converts the data from the format used by the control system database 214 to store the data (e.g. SQL) to a server XML format. The client model 210 then converts this to a client XML format. It is not immediately clear to which of these steps claim 1 of the '366 application is referring. This does not however make a substantial difference to the patentability of the claim. It is sufficient to determine that the data is exported both to the client model and/or to the external editing system in an XML format.

- 16 There are no further constructional issues I need to consider in relation to any of the divisional applications.

The '367 application

Step (2): Identify the actual contribution

- 17 Dr Lockey submitted that the contribution made by claim 1 of the '367 application is a new editing system for configuring a process control system by modifying the process control data, whereby the process control data is stored in a database in a first data format by a data converter, and the data enables the editor to display process control data in a manner which relates the process control data to a second device.
- 18 The contribution made by claim 1 of the '367 application appears to me to be an external editing system for modifying process control data which has a database in which is stored the process control data in a first data format, the format associated with the external editing system, the editor including a data converter that converts the data to an extensible markup language (XML) format so that it can be related to a second device of the process control system. This identified contribution does not differ significantly from that identified by Dr Lockey or, for that matter, the contribution identified by the examiner in his examination reports.
- 19 Dr Lockey sought to distinguish this contribution from that of the parent application by highlighting that the present claim is very specifically directed to a remote editing system having a specific structure and function, whereas the claims of the parent application were directed to a method of or apparatus for controlling a process in which the control data was mapped between two formats via an XML format.
- 20 The contribution of claim 1 of the '367 application appear to me to have considerable similarity to that of the claims of the parent application. Both involve data format conversion from or to XML so that process control data may be used by different systems. It does not in my mind make any material difference whether the claim is directed towards a method of controlling a process control system or to an external editing system. The contributions made by the claims of both the parent application and the '367 application relate to a means for allowing external editors to modify process control data which is subsequently used to control a process. Both claims relate to systems or methods for editing or configuring a process control system. Although the exact contribution made in each case is not identical, there are strong similarities between the respective contributions made by the respective claims of the two applications.

Step (3): Ask whether it falls within the excluded subject matter

21 At the hearing and in his skeleton Dr Lockey addressed me on the relevance of *AT&T Knowledge Ventures LP & CVON Innovations Ltd v Comptroller General of Patents* [2009] EWHC 343 (Pat) to the invention claimed in the '367 application. In this case Lewison J confirmed the decision of the hearing officer in relation to AT&T's application, holding that the invention was excluded. The judge found, amongst other things, that the claimed invention in AT&T's application did not make formats compatible which were once incompatible. Thus it did not solve the technical problem of incompatibility between formats. Dr Lockey argued that in *AT&T* the problem of incompatible data was "circumvented" by flagging that the format was incompatible with the intended device, or indeed by simply making the data unavailable. He contrasted this with the present invention where the data is made available to the editor despite the difference in format by mapping from a first format to an XML format. Mr Thorpe addressed this issue in paragraphs 36-40 of his decision on the parent application (see paragraph 40 reproduced below). He did not accept that the invention claimed in the parent application solves the sort of technical problem envisaged by Lewison J. Rather what it does is provide additional programming to make formats compatible, in common with previous systems. I agree completely with Mr Thorpe on this matter and the same arguments apply to the '367 application.

22 In paragraphs 40-42 of his decision on the parent application Mr Thorpe said:

40. Hence what I understand the invention to do is to more easily allow for the introduction of newer process control applications having different and possibly incompatible data formats to already existing control applications. It achieves this by providing a custom script or program that can convert the data format of the newer applications to XML so as to be compatible with the existing applications that already have their data converted in this way. This is however similar to what previously known systems would have done, albeit as noted in the paragraph of the description just referred to, in previous systems it would have involved more extensive programming to accommodate the different data formats. So in practice neither the existing systems nor the invention really "solve" the problem of incompatible data formats in the sense that seems to be envisaged by Lewison J [in *AT&T*]. Rather what they both do is provide additional programming to make the formats compatible.

41. Dr Lockey also refers me to *The Autonomy Corp Ltd v Comptroller General of Patents* [[2008] EWCH 146 (Pat), Lewison J at 16], and *Bloomberg LLP and Cappellini's Applications* [[2007] EWCH 476 (Pat), [2007] FSR 26, Pumfrey J at 12]. He seeks to argue that the invention here relates to more than the sort of data manipulation referred to in those cases. In particular he sought to use these cases to demonstrate that the invention here provides a technical solution in a technical context unlike the inventions in these two cases. The technical solution that he seems to be referring to is that of dealing with incompatible formats. I have already addressed this. The technical context he refers to is that of the overall

system and the ability of the invention to modify the operation of the process control system. That the invention operates in such a technical context is neither here nor there – anything that uses a computer can be said to operate in a technical context. What matters is whether the invention provides a technical contribution.

42. I have already found that the contribution made by the invention resides in apparatus and a method for editing or configuring a process control system where process data is converted from a first format into an XML format, edited and then converted back into the first format. There is no suggestion that the hardware used is anything other than conventional. Nor as I have discussed does the invention have any technical effect on a process which is carried on outside of the computer on which the invention is clearly required to be run. Rather what the invention does as a matter of practical reality is to simply shift data from an initial format into an XML format and then return it to the initial format. This is data manipulation by means of a computer program. The program may be a better program but it is still a program. And since the invention does not provide a technical contribution, it falls squarely within the computer program exemption of section 1(2)(c).

- 23 The contribution made by claim 1 of the '367 application also relates to shifting data from an initial format to an XML format. What the invention in this case does as a matter of practical reality is to convert process control data from a first data format to an XML format so that it is able to be related to a second device. This is very similar to Mr Thorpe's finding on the parent application. The fact that the claim of the '367 application is directed towards a remote editing system rather than a method of controlling a process does not alter the relevance of Mr Thorpe's arguments. It is clear in the claims of the parent application that the invention uses an external editor to modify the process control data, just as claim 1 of the '367 application does. Thus the same arguments made by Mr Thorpe in the paragraphs 40-42 of his decision apply and the contribution made by claim 1 of the '367 application does not make a technical contribution and thus relates to a program for a computer and falls entirely within the excluded matter.

The '366 application

Step (2): Identify the actual contribution

- 24 The invention claimed in claim 1 of the '366 application relates to an external editing system for modifying process control data, the editing system including an editor which accesses process control data stored in a database via a database server. A query builder is coupled to the database server which generates queries to enable the database server to retrieve the process control data from the database based on those queries. An interface is coupled to the query builder which imports or exports process control data in an XML format.
- 25 The query builder appears to me to be entirely standard in the art. Any database must have a means for querying the database and for retrieving data from the database based on that query. I do not therefore consider this feature to be part

of the actual contribution. The contribution therefore relates in my view to an external editing system in which an editor is coupled via a database server to a database storing process control data, whereby an interface coupled to the database server via a query builder imports or exports process control data, dependent on queries of the database, in XML format. When the claim is considered in the light of the description it is apparent that the advantage is that, whatever format the database actually uses to store the process control data, an external editor may access that data via an XML format. Some form of data format conversion of the data stored in the database to an XML format is envisaged.

Step (3): Ask whether it falls within the excluded subject matter

- 26 It is apparent that the contribution made in the claims of the '366 application has considerable similarities with that made in the '367 application and that made in the parent application. Once again the invention relates to ensuring that process control data is converted to an XML format so that it may be accessed and modified by an external editor. It is in my view implied in claim 1 that some sort of data conversion will take place during this process. The feature present in the contribution made by claim 1 of the '366 application but not explicitly in the contribution made by claim 1 of the '367 application or in the claims considered in relation to the parent application as a matter of practical reality is that the process control data which is converted to XML format is data which is returned in response to queries. This feature is however strongly implied in the claims of the parent application and there does not appear to be support in the description for any other interpretation (see e.g. paragraph [0059]). It does not in my view therefore add any patentable features to the claimed invention and thus claim 1 of the '366 application is excluded for the same reasons that claim 1 of the '367 application is excluded.

The '365 application

Step (2): Identify the actual contribution

- 27 The invention claimed in claim 1 of the '365 application is difficult to distinguish from that claimed in the parent application. The only feature it adds is that it explicitly includes a first schema associated with a first data format and a second schema associated with a second data format. These schemas are used to convert the process control data between the two formats so that a remote editor can modify the process control data. This appears to me to be the essence of the contribution made by claim 1 of the '365 application. The "first data format" is, according to the claim, the format used to exchange process control data between an editor and a process control system data manager. It therefore appears that this reads on to the intermediate XML format claimed in the other applications. The schemas are then used to convert this to a "second data format" which the editor can use in order to display and modify the process control data.

Step (3): Ask whether it falls within the excluded subject matter

- 28 The contribution made in the '365 application is very similar to those made in the

other applications including the parent application. The addition of schemas associated with data formats does not take the invention outside of the computer program exclusion and does not make a technical contribution. In fact any XML data format has to have something like a schema associated with it to define that format so the invention claimed in this application adds little to the inventions claimed in the other applications. The invention claimed in the '365 application is therefore also excluded from patentability as relating to a program for a computer as such.

Step (4): check whether the actual of alleged contribution is actually technical in nature

- 29 For each of the divisional applications above I have confirmed that the the claims do not make a technical contribution.

Conclusion

- 30 In conclusion I have found that the inventions claimed in all three divisional applications are excluded from patentability as they each relate to a program for a computer as such. There is very little to distinguish these inventions from that claimed in the parent application which has already been refused at a hearing as relating to a program for a computer as such. I have studied the application and do not consider that a saving amendment is possible. I therefore refuse the three applications GB 0814367.9, GB 0814366.1 and GB 0814365.3.

Appeal

- 31 Under the Practice Direction to Part 52 of the Civil Procedure Rules, any appeal must be lodged within 28 days.

B MICKLEWRIGHT

Deputy Director acting for the Comptroller