

## PATENTS ACT 1977

APPLICANT Fisher-Rosemount Systems, Inc

ISSUE Whether patent application number GB  
0324470.4 complies with section 1(2)

HEARING OFFICER J J Elbro

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## DECISION

### Introduction

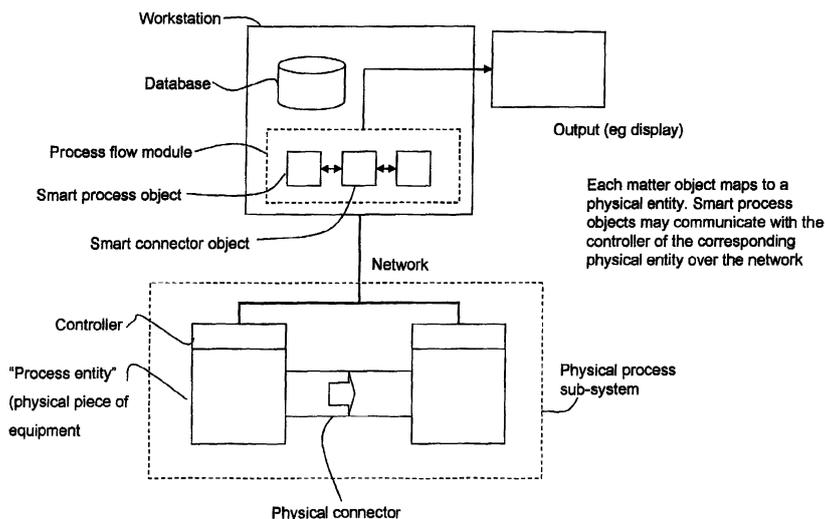
- 1 Application no GB 0324470.4 was filed on 20 October 2003, claiming priority from an earlier US application dated 22 October 2002, and published under serial no. GB 2395801 A on 2 June 2004. An examination report was issued on 30 September 2004, and rounds of correspondence followed between the examiner and the applicant's agents. During this correspondence, applications GB 0514158.5, GB 0514161.9, GB 0514164.3 and GB 0514167.6 were divided out from the original application and published as GB 2417574 A, GB 2418030 A, GB 2417575 A and GB 2418031 A respectively.
- 2 The examiner has maintained throughout objection that the invention claimed in this application is excluded from patentability as a computer program under section 1(2) of the Patents Act 1977, which the applicant has not been able to overcome despite amendment of the specifications.
- 3 The matter therefore came before me at a hearing, after several postponements, on 2 April 2007, at which the applicant was represented by its patent attorney, Dr Alex Lockey of Forrester Ketley & Co. The examiner, Mr Tyrone Moore, also attended. It was agreed at the hearing that my decision would cover only the question of excluded matter, leaving other questions to further processing of the application if appropriate.
- 4 The correspondence between the examiner and the applicant's agents during prosecution of the application was based on the law as it then stood in the light of case law. However on 27 October 2006, after the hearing had been appointed but before it was held, the Court of Appeal handed down its judgment in the matters of *Aerotel Ltd v Telco Holdings Ltd* and *Macrossan's Application* [2006] EWCA Civ 1371 ("*Aerotel/Macrossan*") setting out a new test for patentability, as outlined below. The examiner therefore wrote to the applicant in a letter dated 13

November 2006 re-assessing the application in the light of this new test and indicating that he still believed the invention to be excluded.

- 5 Dr Lockey replied in a letter faxed the day of the hearing arguing that the invention as presently claimed was still patentable. However, in the event that I did not agree, he submitted an alternative version of claim 1.

### The inventions

- 6 The invention claimed in the application concerns the operation of a process plant – such as chemical or petroleum processing in a network of pumps, flow transmitters and heat exchangers which connect a tank farm and a distillation column - and providing alarms or other outputs to an operator.
- 7 Dr Lockey in his letter of 2 April provided the following diagram to illustrate operation of the system and I broadly adopt his explanation of how it works.



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- 8 A simple sub-system of the process plant is shown comprising two "process entities" (eg pumps) connected by a physical connector. The process entities are connected via a network to the controlling workstation. The workstation runs a process flow module, which is made of three smart objects, two smart process objects each corresponding to one of the process entities and a smart link corresponding to the physical connection. The workstation provides a suitable environment in which the process flow module can be configured, stored, and operated, and has a suitable output such as an operator display.

9 The smart process objects are self-contained elements. Each includes general information about the process entity to which it corresponds, a store to hold variable or changing data concerning the entity, graphical information to enable a suitable display to be generated, one or more inputs and outputs to allow the smart process object to receive data from the corresponding entity (or its controller) and other objects, and send data to other smart objects, and one or more “methods”, essentially setting out how the object uses the data, for example to detect errors such as leaks or other conditions, or operating parameters such as mass balances or flows. A smart link is a particular type of smart object which receives as its input flow data from an upstream smart process object, simulates flow within the physical connection, and provides an appropriate output to a downstream smart process object.

10 The process flow module, as an assembly of a plurality of smart objects, has associated rules such as process flow algorithms associated with the performance of system-level methods such as mass balance and flow calculations, using data provided by the smart process objects of the process module. Similarly, an operator display, alarm or other output may be generated in accordance with the result of the algorithm.

11 The claims on the present application are primarily concerned with the features of the smart process object.

12 There is a single independent non-omnibus claim, claim 1, which reads as follows:

A user workstation for a process control system having a plurality of process entities for use in viewing and providing functionality in a process plant, the user workstation having a processor, each object entity corresponding to an associated process entity and comprising:

- a computer readable memory;
- an object stored on the computer readable memory and adapted to be executed on the processor, the object including:
  - a parameter memory storage adapted to store entity parameter data pertaining to the associated process entity during execution of the object on the processor;
  - a graphic representation depicting the associated process entity and adapted to be displayed to an operator on a display device during execution of the object on the processor;
  - one or more parameter data inputs or outputs where at least one of the parameter data inputs of some of the object entities is adapted to receive data over the network for the corresponding process entity; and
  - a method adapted to be executed on the processor to perform a function using the entity parameter data to produce an output related to operation of the associated process entity.

13 The alternative version of claim 1 reads as follows:

A process control system comprising a user workstation and a plurality of process entities, the user workstation and the plurality of process entities being connected via a network, the workstation having a plurality of object entities for use in viewing and providing functionality in a process plant, the user workstation having a processor, each object entity corresponding to an associated process entity and comprising:

- a computer readable memory;
- an object stored on the computer readable memory and adapted to be executed on the processor, the object including;

a parameter memory storage adapted to store entity parameter data pertaining to the associated process entity during execution of the object on the processor;

a graphic representation depicting the associated process entity and adapted to be displayed to an operator on a display device during execution of the object on the processor;

one or more parameter data inputs or outputs where at least one of the parameter data inputs of some of the object entities is adapted to receive data over the network for the corresponding process entity; and

a method adapted to be executed on the processor to perform a function using the entity parameter data to produce an output related to operation of the associated process entity.

## The law

14 The examiner raised objections under section 1(2)(c) of the Patents Act 1977 that the invention in each application is not patentable because it relates to a program for a computer as such. As explained in the notice published by the Patent Office on 2 November 2006<sup>1</sup>, the starting point for determining whether an invention falls within the exclusions of section 1(2) is now the judgment of the Court of Appeal in *Aerotel/Macrossan*. It is not expected that this will fundamentally change the boundary between what is and is not patentable in the UK, except possibly for the occasional borderline case. In *Aerotel/Macrossan* the court reviewed the case law on the interpretation of section 1(2) and approved a new four-step test for the assessment of patentability, namely:

- 1) Properly construe the claim
- 2) Identify the actual contribution
- 3) Ask whether it falls solely within the excluded matter
- 4) Check whether the contribution is actually technical in nature.

15 As stated at paragraphs 45 – 47 of the judgment, reconciling the new test with the earlier judgments of the Court of Appeal in *Merrill Lynch* [1989] RPC 561 and *Fujitsu* [1997] RPC 608, the fourth step of checking whether the contribution is technical may not be necessary because the third step – asking whether the contribution is solely of excluded matter – should have covered the point.

16 At the hearing, Dr Lockey agreed that this was the correct test to apply. However, in his letter of 1 April, he argued that the fourth step was always necessary because of paragraph 46 of the judgement (Dr Lockey's emphasis):

“The fourth step - check whether the contribution is ‘technical’ may not be necessary because the third step should have covered that. It is a necessary check if one is to follow *Merrill Lynch* as we must.”

17 I do not so read the judgment. It seems to me that what the court of appeal is saying is that if an application has failed step 3 (falling wholly within excluded

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<sup>1</sup> <http://www.patent.gov.uk/patent/p-decisionmaking/p-law/p-law-notice/p-law-notice-subjectmatter.htm>

matter), that is an end of it, and the fourth step is not necessary. However, it is conceivable that an application might pass step 3, but still be not technical. In such a situation, the application must be refused, in accordance with Merrill Lynch, and hence the fourth step is necessary to ensure consistency with Merrill Lynch. It is not a “back door” to allow back in claims to matters falling wholly within excluded subject matter.

- 18 As noted in paragraph 44 of the judgment, it is often necessary to take the applicant’s word for what a contribution is, particularly in terms of difference from the prior art. This is particularly so in this case where the examiner has not yet given full consideration to novelty and inventiveness in view of the outstanding excluded matter objections. However, as the judgment cautions, this does not mean I should simply accept the patentee’s version of the contribution if that is not found in the claim.

## **Analysis**

### Construing present claim 1 and the alternative claim 1

- 19 The construction of current claim 1 presents a few difficulties in that it is not entirely clear. On a simple reading of the claim, it is ambiguous as to whether the “object entities” are possessed by the workstation or by the process control system. However, it seems from the specification that it is intended that the workstation comprise these entities, which are (program) objects on a carrier. Indeed, the alternative claim 1 is clear in this respect.
- 20 As currently drafted, therefore, I judge the claim to cover a user workstation with “objects” stored in memory, which is suitable for use in a process control system, and in which each object corresponds to a component of the process being controlled. These objects comprise data pertaining to the corresponding process component and a (program) method which can be run to produce an output related to operation of that component.
- 21 There was some discussion at the hearing as to the appropriate scope of the word “object”. Dr Lockey indicated it was an attempt to generalize the “smart process objects” and “smart links” in the applicant’s system, and was not supposed to mean specifically “object” as in object-oriented programming. Regardless of the precise scope, however, it appears clear to me that the object is a computer program component (which models a real world entity).
- 22 The claim can therefore be considered to be to a workstation with a computer program element (with certain characteristics) stored in memory. Dr Lockey appeared to agree with this at the hearing in that he characterized the claim as to “a workstation...which has these object entities as defined in the specification.”
- 23 The alternative claim 1, by contrast, explicitly claims the process control system as a whole, comprising both the workstation and the process components.

### Identifying the contribution made by the invention

- 24 Turning now to step 2 of the test and the actual contribution made by the invention, Dr Lockey argued that the contribution is providing a monitoring system that has the association between software objects and physical components of a process, where the object directly maps to and communicates with the physical component. This makes it easier to, for example, monitor alarm situations and monitor the operational parameters of the component.
- 25 Regarding the alternative claim 1, this seems to me to be correct. As noted above, what is covered is an allegedly new process control system, comprising both physical process components and corresponding software objects. The contribution to the sum of human knowledge in this claim is an (allegedly) improved means for an operator to control the operation of the physical process. The last three lines of the claim make it clear that information on the operation the physical process components is provided to the operator via the software objects.
- 26 However, I do not think this applies to the current claim 1. This claim is not a complete control system – it is instead a computer program, on a workstation, which is suitable for use in such a system. The workstation appears to be a wholly conventional computer. As such, it seems to me that the contribution made by this claim is a program, characterised by being suitable for use in a process control system and by comprising programming objects with particular features.
- 27 Dr Lockey argued in his letter that this was not a correct approach. He cites the decision in Aerotel, paragraph 53, that Aerotel’s “system as a whole is new”. He then argued that the Aerotel system amounted to a new program running on otherwise conventional hardware and therefore such a thing can be patentable.
- 28 It seems to me that this argument is not persuasive as in Aerotel’s case the Court of Appeal explicitly decided that there was a new combination of hardware, which is not the case in the present claim.

Whether the contribution falls solely within excluded matter

- 29 At the hearing Dr Lockey argued that in the present case the invention was not an advance in computer programming, rather it was a monitoring system for a process control system, which was not solely a computer program.
- 30 For the alternative version of claim 1, I agree. The contribution as determined above includes control of the physical process. This goes beyond being a computer program.
- 31 However, for current claim 1, the contribution I found above is solely a computer program and thus falls wholly within excluded matter.

Check whether the contribution is actually technical in nature.

- 32 Given my finding above regarding current claim 1, this step is only relevant to the alternative claim 1. This claim is to a system for controlling a physical process which is clearly technical subject matter.

### Other claims

- 33 The dependent claims relate either to the detail of the software objects or to what process attributes are monitored. The only claim Dr Lockey made any argument regarding was claim 2, which adds the additional feature of the object being adapted to allow inputs to one object include outputs of another. I do not think this addition would take the claim outside the computer program exclusion as it is simply a feature of the program object. Omnibus claim 21 claims a workstation "as hereinbefore described" and appears excluded for the same reasons as claim 1.

### **Conclusion and next steps**

- 34 I therefore find that the invention as presently claimed is excluded from patentability under section 1(2). However, I have also found that the alternative version of claim 1 submitted with the agents letter of 2 April 2007 is not so excluded.
- 35 Amendment will therefore be needed to the application before it is in order for grant, both to introduce the changed claim 1 and consequent amendments e.g. to dependent claims. I therefore remit the application to the examiner for further processing to allow appropriate amendments to be made and consideration to be given to other aspects of allowability for grant. I am aware that the period of time for putting this application in order expired on 23 April 2007, but the applicant can request for this period to be extended, including a two month extension as of right.

### **Appeal**

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

**J J ELBRO**

Deputy Director acting for the Comptroller