Intellectual Property Office

BL O/716/19

25 November 2019

PATENTS ACT 1977

APPLICANT	Fisher-Rosemount Systems, Inc
ISSUE	Whether patent application GB1804304.2 complies with Section 1(1)(b)
HEARING OFFICER	B Micklewright

DECISION

Introduction

1 This decision relates to whether the invention in GB1804304.2 involves an inventive step. The application, published as GB2561713 A, is a divisional application, lodged on 19 March 2018 and divided from earlier application GB1216480.2 which has a filing date of 14 September 2012. Both applications claim a priority date of 19 September 2011.

2 In five examination reports the examiner has consistently raised objections based on a piece of the applicant's own prior art. The applicant has made a number of amendments to the claims and has provided observations to accompany those amendments but has been unable to persuade the examiner that there is a non-obvious distinction between the prior art and the claimed invention. The matter therefore came before me at a video hearing held on 12 September 2019. The applicant was represented by Mr Russell Sessford of Forresters.

3 I am grateful to Mr Sessford for providing me with skeleton arguments prior to the hearing. I confirm that I have taken account of these in reaching my decision. I have also reviewed the other correspondence on file.

Background to the invention

4 The invention lies in the field of process control systems of the sort that might be found in large industrial plants such as oil refineries or factories. Process control systems typically include field devices such as controllers and sensors distributed about the plant. The field devices provide data indicative of the operation of the plant to a computerised control system. The control system processes this data and provides control signals to the field devices which, in turn, control the operation of the plant. The control system also performs various statistical analyses during operation of the process to identify abnormal behaviour which might indicate a possible problem with the quality of the batch of product being processed, or worse still a safety issue. An operator in a control room monitors computer screens which

provide alerts when abnormal behaviour is identified. The operator's role is to respond to these alerts and to steer operation of the plant appropriately. At any one time the operator may be faced with very many alerts, and they may need to act quickly. This invention is all about providing a user interface which helps the operator quickly identify and diagnose issues so that action may be taken.

The claims

5 The application contains a single independent claim, as follows:

> *A computer implemented method of displaying process alert information about a process to a user in a process control system, comprising:*
>
> *providing, via a user interface device, a first screen providing an indication of a set of alerts detected within the process, the first screen being launched upon a selection of an alarm history view and the selection causing a listing of the indication of the set of alerts, the set of alerts comprising: (1) a listing of one or more alerts that have occurred in the past; and (2) a listing of one or more alerts that are currently active in the process;*
>
> *enabling a user, via a computer processing device, to select one alert of the set of alerts for viewing from the first screen;*
>
> *providing, via the user interface device, a second screen including historical trend data pertaining to a variable that resulted in the generation of the alert, wherein the historical trend data is centered about the time of the alert;*
>
> *enabling the user, via the computer processing device, to specify a second selection, directly from the second screen, of one or more other variables for which to see historical trend data, the one or more other variables associated with other measurements output by field devices made at or around the time of the generation of the alert; and*
>
> *providing, via the user interface device, a third screen including historical trend data for the one or more other variables, wherein the second selection automatically launches the third screen, wherein providing a third screen including historical trend data for the one or more other variables includes providing historical trend data for the one or more other variables for the same time frame as the displayed historical trend data for the variable that resulted in the generation of the alert, and providing historical trend data for the one or more other variables in the same plot as the historical trend data for the variable that resulted in the generation of the alert.*

The law

6 The relevant provisions of the Patents Act 1977 are sections 1(1)(b) and section 3.

> ***Section 1(1)***
>
> *A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say –*

(a) the invention is new;

(b) it involves an inventive step;

(c) it is capable of industrial application;

(d) the grant of a patent for it is not excluded by subsections (2) and (3) or section 4A below;

and references in this Act to a patentable invention shall be construed accordingly.

Section 3

An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above (and disregarding section 2(3) above).

7 The courts[1] have provided guidance on how to assess inventive step in the form of a four-step test. The *Windsurfing/Pozzoli* test is as follows:

(1)(a) Identify the notional "person skilled in the art"
(1)(b) Identify the relevant common general knowledge of that person;

(2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;

(3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;

(4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

Analysis and arguments

The person skilled in the art

8 The skilled person here is skilled in the art of process control system user interfaces. There is no disagreement about that. Mr Sessford says that they would always have safety and regulatory issues in their mind and, with the biases that brings, the skilled person in this field of technology is quite set in his ways. I think what Mr Sessford is driving at is that the skilled person would have a technical prejudice against providing the operator with information about the process in an unconventional or unexpected way. I must say that am a little uncomfortable with the assertion that such a prejudice exists, but it is not something that the examiner has refuted and, as

[1] See *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd* [1985] RPC 59, and *Pozzoli SpA v BDMO SA* [2007] EWCA Civ 588, [2007] FSR 37

Mr Sessford rightly pointed out at the hearing, the examiner has provided no evidence (such as relevant prior art) to the contrary.

The inventive concept

9 Whilst Mr Sessford very helpfully led me through the claim at the hearing I do not think it necessary to repeat that in detail here; it is relatively straightforward to construe claim 1 and thereby identify its inventive concept which is clearly set out in the features of claim 1.

The Difference between the invention and the prior art

10 The examiner has maintained that the invention is obvious in the light of US 2010/0318934 A1 (Blevins et al), of which Figure 5 is of particular interest. Figure 5 illustrates various screens to which reference will be made, and is presented below:

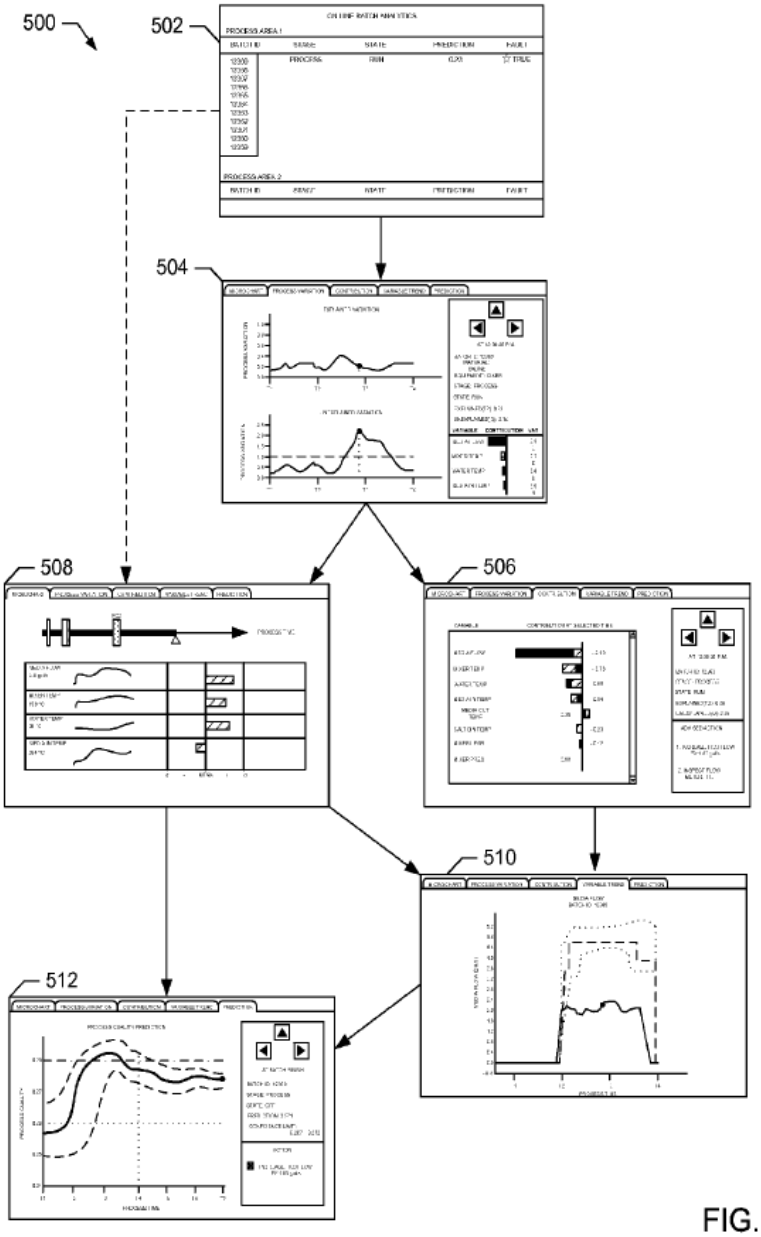

FIG. 5

12 There is disagreement between the examiner and the applicant as to the differences between US ‘934 and the inventive concept of claim 1. The applicant sees rather more differences than the examiner.

13 The first point of disagreement relates to the “first screen” defined in claim 1 and it is here that Mr Sessford sees the first hint of a “fundamental philosophical difference” (as he put it) between the invention and the cited prior art. The claim says the first screen provides an indication of a set of alerts comprising alerts that have occurred in the past and alerts that are currently active. The examiner says that screen 502 in US ‘934 shows such a set of alerts. Mr Sessford’s view is that it does not. Rather, he argues, screen 502 shows a list of batches along with an indication as to whether there is a fault (i.e. an alert) or not. At first this appear to be a semantic point, but Mr Sessford was keen to explain that there is a significant difference. Screen 502 in US ‘934 certainly shows a list from which the operator can see which batches are in a state of fault and which are not, but they do not see a list of alerts per se. Mr Sessford pointed out that it is quite conceivable (and, in practice, quite likely) that if a given batch is listed as having a fault then there would be multiple alerts, possibly a very large number. From screen 502 the operator cannot see these alerts, nor know how many alerts there are; only that there must be at least one if the batch is identified as having a fault. In a general sense, of course, one might possibly say that screen 502 is a list of alerts, inasmuch as the operator is alerted to the fact that at least one alert exists, but I do not think that is reasonable to interpret US ‘934 this way in the context of claimed invention for reasons that will become clear. I therefore agree with Mr Sessford that there exists a distinction between the “first screen” of the invention and screen 502 of the prior art.

14 The next significant point of disagreement between the applicant and the examiner relates to the “second screen” of claim 1. The claim requires that the operator must be able to select an individual alert from a list of alerts and that a second screen must then be provided which shows historical trend data relating to a variable which resulted in the generation of the selected alert. Importantly that trend data must be centred about the time of the alert. In other words, the second screen must jump straight to the portion of the variable trend data which corresponds to the alert which has been selected.

15 In US ‘934 a screen 504 is accessible from screen 502, and this certainly shows a graph of a variable. Moreover, screen 504 shows where a process variation curve 722 has exceeded a threshold 726, and the graph is more-or-less (but not perfectly) centred on the time at which the threshold was exceeded. But Mr Sessford pointed out that this is incidental; the screen 504 looks this way because the operator has scrolled through the available data to find this point. Mr Sessford helpfully explained that in practice the graph shown in screen 504 could include any number of instances of the variable exceeding the threshold, any of which the operator may wish to investigate. His argument is that it would be impossible, in US ‘934, to automatically provide a graph centred at the time of a selected alert because the operator has not selected a particular alert, but rather the batch for which any number of alerts might exist. This is why I do not think it reasonable to interpret screen 502 as a list of alerts. To make technical sense of the claim an alert must be interpreted as something which carries with it a time about which the second screen can display historical time data. So, to be clear, the difference is that in US ‘934 the

operator must interact with the graph in 504 to centre it on data pertaining to an alert of interest, whereas in the invention the second screen is able to automatically display the data relating to the alert of interest because the operator selected the alert of interest on the previous screen. This, then, is the "fundamental philosophical difference" that Mr Sessford alludes to – US '934 is a batch-focussed process, whereas the invention is an alert-based process.

16 A third point of disagreement between the examiner and the applicant relates to the "third screen". The claim requires that the operator is able to select, from the second screen, one or more additional variables or interest. This automatically launches a third screen displaying historical trend data for the selected additional variable(s) and also the historical trend data for the variable which resulted in the alert. The examiner has identified screen 510 in US '934 as corresponding the third screen of the invention, as it clearly displays trend data for selected variables. Mr Sessford's position is that there is no disclosure of directly jumping from screen 504 to 510 in the prior art document.

17 At first sight that would appear to be quite correct; figure 5 shows an intervening screen (506 or 508) with which the operator must interact in order to display screen 510. However the examiner sees things somewhat differently based on his reading of paragraph [0095] of US '934. The end of that paragraph says that an operator may select a listed variable in the contribution chart 504 to view a history of the variable in screen 510. There is clearly something a little odd with this portion of paragraph [0095]. Everywhere else in US '934 the screen 504 is called a "process variation graph", and the term "contribution chart" does not appear anywhere else in the document. The closest terminology is "contribution graph 506", which is mentioned repeatedly in paragraph [0095]. Mr Sessford submits that the skilled reader would immediately and without difficulty understand that "contribution chart 504" should actually read "contribution graph 506". The examiner, on the other hand, considers that what paragraph [0095] teaches the skilled reader is that the operator can go directly from a "summary contribution faceplate" shown in the bottom right hand corner of 504 (shown in more detail at 802 in figure 8) to screen 510. The faceplate 802 shows a subset of the information provided on screen 506, and therefore might possibly be classed as a contribution graph, but I agree entirely with Mr Sessford that it is unreasonable for the examiner to reach the conclusion he has based on what is plainly a clerical error in paragraph [0095]. Furthermore, as Mr Sessford pointed out, paragraph [0110] explicitly says what happens if the operator clicks on the faceplate; he goes to screen 506 or 508, and not screen 510. In my view there is a clear difference between the claimed invention and US '934; in the invention the "third screen" must be automatically launched from the "second screen" whereas the operator must interact with an intervening screen (506 or 508) to get from 504 to 510 in US '934.

18 We briefly touched on two further differences between the cited prior art and the invention. The first relates to the first screen. The claim requires that it is launched upon selection of an alarm history view. It is common ground between the examiner and the applicant that this is not shown in US '934, though the examiner considers this obvious. I invited Mr Sessford to address me on this point, but his view was that nothing hinges on this, and I tend to agree. The second is that there is no disclosure in US '934 of historical trend data for multiple variables displayed for the same time

frame and in the same plot. The examiner and Mr Sessford both accept this point, but it is not one that Mr Sessford addressed in any detail at the hearing, presumably because he did not consider it necessary to do so in view of other more significant differences. Again, I share that view.

19 In summary, I consider that there are three major differences between the invention at the prior art. Firstly, US '934 does not disclose a first screen which shows a list of alerts, which means that an operator cannot select an alert. Secondly, US '934 does not have a second screen which, upon selection of an alert on the first screen, shows historical trend data centred upon a time of the alert. Thirdly, US '934 does not allow an operator to select additional variables on the second screen and so automatically provide a third screen which displays historical trend data for those variables.

Is the invention obvious?

20 I need to decide whether the unimaginative skilled person would find the differences I have identified above between the invention and the cited prior art to be obvious.

21 Notwithstanding Mr Sessford's assertion that the skilled person has certain biases in this area of technology I have no doubt that the skilled person would consider some differences to user interfaces and workflows to be obvious. For example, in isolation the idea of displaying two variables of interest on a common graph might well be obvious. However, in this case the individual differences amount to something rather more significant. Collectively they provide the operator with a quick way of getting to the data that can explain the cause of an alert so that the operator can diagnose it, but the crucial point is that the invention takes the operator straight to pertinent data relating to an individual alert of interest whereas the prior art requires the operator to analyse data relating to a batch. There is no hint or suggestion of this in the cited prior art, and furthermore there is no evidence before me that such an alert-based approach would form part of the skilled person's common general knowledge. Accordingly I can see no reason why the skilled person would consider it obvious that modifications to the method of US '934 could made so as to end up with the claimed method, in the absence of hindsight.

Conclusion

22 I have found that the claimed invention involves an inventive step under section 1(1)(b).

23 The examiner has confirmed that there are no further matters outstanding, so I therefore remit the application to the examiner for grant.

B Micklewright
Deputy Director, acting for the Comptroller