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S. DUFOW

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01/20/93

THE PATENTS ACT 1977

IN THE MATTER of Patent Application

No 8923409.0 in the name of

Hitachi Limited.

DECISION

Application number 8923409 was filed on 17 October 1989 claiming priority from a Japanese application filed on 19 October 1988 and was subsequently published under the number 2225137A. During the course of substantive examination the examiner raised objections under section 1(2)(c) that the invention was no more than a computer program or a method for performing a mental act, and under section 1(1)(b) that the invention claimed in certain claims did not involve an inventive step having regard to a Japanese patent specification JP A 62-276470 and to an article from a published journal, "Power (USA)", Volume 130, No 4, April 1986, pages 83 to 85 and 87 to 88. Although certain aspects of the section 1(2) objection were resolved in discussions between the examiner and the applicant's agent, no agreement was reached on whether the invention related to a method for performing a mental act, nor was any agreement reached on the section 1(1)(b) objection and these matters accordingly came before me at a hearing on 21 April 1993 when the applicant was represented by Mr T R Calderbank of Mewburn Ellis.

The present application concerns a system for estimating the remaining useful life of machinery, such as that in a power generating plant. The system first estimates the life expectancy of each component in the plant and second, uses this component data to estimate the life expectancy of the whole plant. A particular feature of the system is that it uses what is called "historical data", that is data concerning the history, both physical and operational, of each component rather than data which relates only to the current state of each component. The system is then used to develop an optimum plan for extending the life of the plant by estimating the results of changing the intervals at which various components are inspected

or serviced and the effect this might have on the overall life of the plant.

While the specification makes it clear that the system is to be implemented using a computer, it contains no disclosure of any novel computer hardware and it has therefore been accepted that the invention is realised by suitably programming a conventional computer. Equally, there is no disclosure of any physical connection between the computer and the plant machinery involved; the way in which data is supplied to the computer is not specified and the computer simply displays its results to an operator.

At the hearing, and when dealing with the section 1(2) objections, Mr Calderbank addressed his arguments to the claims at large and no claim was considered individually. It is however convenient to consider the arguments against the invention as this is presently claimed in the main, independent claims which are as follows:

"1. A system for administering the life of a plant comprising:

a data controlling apparatus for storing and controlling at least the data on the design conditions of the plant, the operation history of the plant, the characteristics of the materials forming members of the plant, and the history of repair and troubles of the plant;

a component-corresponding life expectancy estimating apparatus for estimating the life expectancy of various pieces of component constituting the plant on the basis of the damaged state of each piece of the component, and on the basis of data on the history of each piece of the component which is stored in said data controlling apparatus;

a plant life expectancy estimating apparatus for making an overall judgement of the result of the estimation of said component-corresponding life expectancy estimating apparatus, and for estimating the life expectancy of the entire plant;

a plant life extension and evaluation apparatus for determining, on the basis of the result of the estimation of said plant life expectancy estimating apparatus, the optimum plan for the extension of the life of each of certain pieces of component selected on the basis of the degree of importance, and for evaluating the grading-up of the component, including the economical value thereof; and

an output apparatus for outputting and displaying information on the result of the determination of said plant life extension and evaluation apparatus.

6. A system for administering the life of a plant comprising:

a data controlling apparatus for storing and controlling at least the data on the design conditions of the plant, the operation history of the plant, the characteristics of the materials forming members of the plant, and the history of repair and troubles of the plant;

a damage recordal means for recording the damaged state of members of various pieces of component constituting the plant;

a component-corresponding life expectancy estimating apparatus for estimating the life expectancy of the various pieces of component on the basis of values resulting from the recordal by said damage detecting means and on the basis of data on the history of each piece of the component which is stored in said data controlling apparatus;

a plant life expectancy estimating apparatus for making an overall judgement of the result of the estimation of said component-corresponding life expectancy estimating apparatus, and for estimating the life expectancy of the entire plant;

a plant life extension and evaluation apparatus for determining, on the basis of the result of the estimation of said plant life expectancy estimating apparatus, the optimum plan for the extension of the life of each of certain pieces of component selected on the basis of the degree of importance, and for evaluating the grading-up of the component, including the economical value thereof; and

an output apparatus for outputting and displaying information on the result of the determination of said plant life extension and evaluation apparatus.

9. A system for administering the life of a plant in which the damaged state of each of various pieces of component constituting the plant is detected by detecting damage thereof, the life expectancy of each of the pieces of component is assessed, and, on the basis of this assessment, the life of the component is administered, comprising;

a data base controlling apparatus for storing and controlling at least the data on the design conditions of the plant, the operation history of the plant, the characteristics of the materials forming members of the plant, and the history of repair and troubles of the plant;

a component-corresponding life expectancy estimating apparatus for estimating the life expectancy of each piece of the component by detecting the damaged state of the piece of the component constituting the plant, and by employing the result of this detection and said data base controlling apparatus storing data on the history of each piece of the component;

a plant life expectancy estimating apparatus for estimating, on the basis of the result of the estimation of said component-corresponding life expectancy estimating apparatus, the life expectancy of the entire plant; and a plant life extension and evaluation apparatus for determining, on the basis of the result of the estimation of said plant life expectancy estimating apparatus, the optimum plan for the extension of the life of each of certain pieces of component selected on the basis of the degree of importance, and for evaluating the grading-up of the component, including the economical value thereof."

Having agreed that the invention claimed in these claims is realised by a conventional computer with a program, the examiner and Mr Calderbank also agreed that the relevant law is as stated by Fox LJ in Merrill Lynch's Application [1989] RPC at page 569 where he said:-

"The position seems to me to be this. Genentech decides that the reasoning of Falconer J is wrong. On the other hand, it seems to me to be clear, for the reasons indicated by Dillon L J, that it cannot be permissible to patent an item excluded by Section 1(2) under the guise of an article which contains that item - that is to say, in the case of a computer program, the patenting of a conventional computer containing that program. Something further is necessary. The nature of that addition is, I think, to be found in the Vicom case where it is stated: "Decisive is what technical contribution the invention makes to the known art". There must, I think, be some technical advance on the prior art in the form of a new result (eg., a substantial increase in processing speed as in Vicom)."

It was also common ground that the effect of this judgment is that for a claim to a conventional computer containing a novel program to be patentable, a technical advance on the prior art in the form of a new result must be present (because otherwise, the claim amounts to no more than the program as such). On this basis, and prior to the appointment of the hearing, Mr Calderbank had argued in response to the examiner's original objection that the present invention was not patentable because it amounted to no more than a program for a computer as such, that the present invention did provide a technical advance on the prior art because it was concerned with the processing of data which related to the technical

state of machinery, and with the provision of an estimate of, and a plan for extending, the life expectancy of that machinery all of which, he contended, provided a technical contribution.

In so arguing, Mr Calderbank had cited the decision of the Technical Board of Appeal of the European Patent Office in the case IBM/Indicating Conditions T115/85 [1990] EPOR 107. This case was concerned with a word processing system in which, in use, messages have to be conveyed to the user so that the system may operate properly; for example the messages may include operational information or instructions such as "Close diskette door", and "Do not remove diskette - data may be lost". The arrangement involved using a programming technique to reduce the amount of memory space necessary to store the large amount of information which might have to be displayed. The original claims were directed to a method of decoding stored phrases and were rejected by the examining division because the sole contribution to the art resided in a program for a computer as such. The applicant then submitted amended claims directed to a method for displaying one of a set of predetermined messages and these claims were allowed by the Board. In its decision the Board stated :

"7. Generally the Board takes the view that giving visual indications automatically about conditions prevailing in an apparatus or system is basically a technical problem.

8. The application proposes a solution to a specific problem of this kind, namely providing a visual indication about events occurring in the input/output device of a text processor. The solution includes the use of a computer program and certain tables stored in memory to build up the phrases to be displayed.

9. Even if the basic idea underlying the present invention might be considered to reside in that computer program and the way the tables are structured, a claim directed to its use in the solution of a technical problem cannot be regarded in the Board's opinion as seeking protection for the program as such within the meaning of Article 52(2)(c) and (3) EPC."

In the face of these arguments the examiner wrote in the Official Letter of 30 July 1992 that

he now believed that :

" ... it may indeed be possible to recognise some degree of technical advance in the claimed invention."

Thus, while it seems that the examiner did not necessarily accept that Mr Calderbank had conclusively proved that the invention amounted to more than a program for a computer, he clearly felt that there was at least an element of doubt and that the applicant should have the benefit of that doubt and accordingly, withdrew his objection that the invention amounted to no more than a program for a computer.

Although, as will be clear from the above, there is no dispute between the examiner and the applicants and their agent as to the outcome of the objection that the invention is no more than a program for a computer as such, I have felt it right to set out the main issue raised by that objection because it has an important bearing on the examiner's objection which remains the subject of dispute, namely that the invention relates to no more than a method for performing a mental act, contrary to section 1(2)(c).

On this issue, Mr Calderbank took the view that the answer to the single basic question of whether or not there was a technical advance should determine both whether the invention was no more than a computer program as such, and whether it was no more than a mental act as such. Thus, he argued, having accepted in the context of the computer program objection that the invention did provide a technical advance, or at least having accepted that it could not be said for certain that the invention did not provide a technical advance, the examiner should also have concluded that the invention did not amount to a mental act. In this respect Mr Calderbank referred me to the judgment of Mr Julian Jeffs QC sitting as a Deputy High Court Judge in the Patents Court in Raytheon Co's Application (as yet unreported). Raytheon's application concerned apparatus for, and methods of, classifying objects such as ships by matching the silhouette of an unknown object with silhouettes of known objects stored in memory. In addressing the question of whether the invention amounted to no more than a method for performing a mental act contrary to section 1(2)(c), and having referred to Fox LJ's remarks in Merrill Lynch to the effect that something more than

excluded matter is required to enable an invention to be patented, and that the extra which is needed is a technical contribution to the art, Mr Jeffs said :

"That approach appears to me to be the right one. It is inherent in the computer aspects of this case, to which I shall come shortly. It also governs the aspect I am at present considering."

Since it is clear that the aspect Mr Jeffs was considering at that point was the question of whether or not the invention amounted to a method for performing a mental act, Mr Calderbank believed that this was support for his view that the single answer to the one basic question of whether or not there was a technical advance was decisive both when deciding whether the invention amounted to no more than a computer program, and when deciding whether the invention amounted to no more than a method for performing a mental act.

The examiner did not accept this view and in order to resolve the matter it is I think necessary to look further at Fox LJ's judgment in Merrill Lynch. Having said that a conventional computer with a program would be patentable if there were a technical advance in the form of a new result, as indicated above, Fox LJ went on to say :

"Now let it be supposed that claim 1 can be regarded as 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 trading 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 me 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."

As I indicated at the hearing, and having carefully looked at this again, it seems to me that the language used here by Fox LJ is simply not consistent with the view that the single answer to the one question of whether or not there is a technical advance is invariably decisive both when considering whether a given invention amounts to no more than a program for a computer, and whether it amounts to no more than a method for performing a mental act. In particular, Fox LJ's words seem to me clearly to admit of the situation where a conventional computer with a program does involve a technical advance but can still be excluded under section 1(2) which could never happen if Mr Calderbank's approach were adopted. Thus, given that a method for performing a mental act is an item excluded from patentability by section 1(2), what Fox LJ appears to me to be saying is that a conventional computer running a program which performs a mental act is not patentable irrespective of any technical advance on the prior art because it amounts to no more than a scheme, rule or method for performing a mental act as such.

Mr Calderbank did not accept this interpretation which he suggested would require programs for computers to be treated differently from the other items excluded by section 1(2) in that while the former would be made patentable by the presence of a technical advance, the latter, apparently, would not. He pointed in particular to the inconsistency which appears to arise if one were to replace the references to a "trading system" and a "method of doing business" in Fox LJ's remarks quoted above with references to a "program for a computer" since the judgment would then appear to suggest that an invention involving a program for a computer where there was a technical advance was at the same time both patentable and unpatentable. However, I do not see this as a problem. As with the present case, Merrill Lynch concerned a conventional computer programmed to perform an act which was itself an (allegedly) excluded matter. In other words, there is one (potentially) excluded item, the program, used in the performance of another (potentially) excluded item. In the present case, as in Merrill Lynch, the tests appropriate to these two items are whether the invention is excluded because it is no more than a program for a computer, and whether it is excluded because it is no

more than one of the other excluded items. I fully accept that both tests must be applied to the whole invention claimed without regard for its separate parts but it still seems to me to be perfectly possible for an invention to pass the first test because it provided a technical advance and yet still fail the second test. Moreover, I see no reason why this should not be possible even in the situation Mr Calderbank postulated where the second item also concerns a computer program. Such a situation could arise, for example, if a computer were programmed in such a way as to provide a technical advance and was then used to write a second program which does not provide a technical advance. An analogy might be the use of a pen, certain technical features of which might well be inherently patentable in their own right, in writing a literary work. I do not think that an invention which amounted to the use of a pen in this way could ever be patentable, even if it were characterised by the use of a particular pen with technical, and hence patentable, features.

Thus, I think that the two tests must each be addressed separately on their individual merits and while I accept that, as was indicated by Jeffs QC in Raytheon, essentially the same question of whether or not there is a technical advance arises both when deciding whether there is more than a program for a computer and whether there is more than a method for performing a mental act, the question can I think apply rather differently in what are two, quite different, contexts.

Against that background, and looking first at the question of whether the invention amounts to no more than a computer program, it seems clear to me that the program has no direct technical effect on the computer in the sense that it does not alter the computer on which it may be run in any technical way, nor does the invention have any direct technical effect on the plant whose life expectancy it is estimating. Rather the computer and the program simply process data which concern the life expectancy of machinery and then display their conclusions to an operator. Nevertheless, it is the case that the data which the program processes, and therefore the program itself, do have a technical significance or purpose, namely to estimate, and to produce a plan to extend, the life expectancy of machinery. To that extent the program may be thought of as providing a technical advance and it therefore seems to me that the examiner had good reason to take the view that the objection that the invention amounts to no more than a program for a computer cannot be sustained, albeit on

the basis that there is some doubt as to whether the program provides a technical advance and that the applicant should have the benefit of that doubt at this stage.

Turning now to the question of methods for performing mental acts, the first thing to note is that the invention claimed is a system and not a method. However, I do not think that is relevant since it is clear from the authorities that it is the substance of the invention which is important and not the form in which it is claimed, and in particular it is clear that an invention defined in terms of the functional means arranged to perform the steps of a method is, without anything further, in substance simply the method in question. Consequently, if the method in question is an excluded method, then the invention is also excluded as being such a method. Certainly, Mr Calderbank did not dispute that this was the case. Neither did he dispute the fact that a method can be a method for performing a mental act even though it is performed by a computer, as in the present case. That this is so is I think clear from Aldous J's judgment in Wang Laboratories Inc's Application 1991 RPC page 463, and specifically at pages 472 and 473 where he said:

"The fact that the scheme, rule or method is part of a computer program and is therefore converted into steps which are suitable for use by a person operating the computer does not matter. ... The method remains a method for performing a mental act, whether a computer is used or not."

Consequently, the remaining issue which I must now resolve is simply whether the present invention amounts to a method for performing a mental act as the examiner argued. Mr Calderbank took the view that the nature of the data being processed, and its technical significance, is such that the method in question is more than simply a method for performing a mental act. In particular he sought to distinguish the present case from that in Merrill Lynch where the invention was simply a collection of functional means which amounted to a trading system and nothing more, whereas in the present case there is a system for administering or controlling or operating on a real, physical object, namely machinery. I am unable to agree. As I indicated earlier there is no real, controlling connection between the system claimed and the machinery and in this respect the words "administering the life of a plant" which appear in the present claims perhaps go too far in suggesting that there is such a

connection. As I understand it, the system simply implements a method of processing data concerning the machinery and presents its conclusions on a screen to an operator. The fact that the data or information which is processed has a technical significance does not in my view mean that the method must be regarded as more than a method for performing a mental act. Human beings frequently deal mentally with technically significant data and no-one would I think suggest that when they do so they are not performing mental acts. The invention presently claimed is simply a method for performing the intellectual exercise of estimating the life expectancy of a plant and developing a plan to extend that life expectancy which is performed using a conventional computer and a program and to my mind, that is no more than a method for performing a mental act and should be excluded as such.

Although thus far I have considered only claims 1, 6 and 9, it seems to me that all of the remaining claims are open to the same objection and should also be excluded. That said however, it does seem to me that it might well be possible to formulate acceptable claims in the present case. Although the description of the invention does not concern the application of the results produced by the method actually to extend the life expectancy of machinery, it seems self-evident that this must be the intended purpose and to the extent that there might be support in the description for, for example, a claim to a method of extending the life expectancy of machinery, there would seem to me to be scope for formulating claims which would be for a technical rather than a mental process. Accordingly, before I refuse the application to proceed under section 18(3), I shall give the applicant an opportunity to amend the application with a view to overcoming my finding that the invention as presently claimed is excluded from patentability by section 1(2)(c).

Before doing that however, I must also consider the remaining objection raised by the examiner under section 1(1)(b) that the invention claimed in claims 1 to 4, 6, 9 and 10 does not involve an inventive step having regard to Japanese patent specification JP A 62-276470 and to an article from a published journal, "Power (USA)", Volume 130, No 4, April 1986, pages 83 to 85 and 87 to 88.

It is I think clear that the law I must apply in determining this matter is as set out by Oliver LJ in Windsurfing International Inc v Tabur Marine (Great Britain) Ltd [1985] RPC page 59,

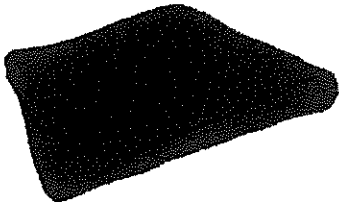
though this case was not referred to at the hearing. The first step identified by Oliver LJ is to identify the alleged inventive concept and at the hearing Mr Calderbank rested his case on the "historical data" which the present invention used in estimating the life expectancy of the machinery and which Mr Calderbank argued had not only not been used before, but also was not suggested by any of the cited prior art. In this respect claims 1, 6 and 9 require the following feature :

" a data controlling apparatus for storing and controlling at least the data on the design conditions of the plant, the operation history of the plant, the characteristics of the materials forming members of the plant, and the history of repair and troubles of the plant;

Having looked carefully at the cited documents, which Mr Calderbank did not dispute were relevant and would have been considered by the notional skilled man, I feel unable to say with confidence that they positively suggest that data concerning the operational history, and the history of repair and troubles, of the plant should be used. That being so, I need say no more than I am not wholly convinced that the invention so far as claimed in claims 1, 6 and 9, and consequently in all the remaining claims, lacks an inventive step.

I have however found that the invention claimed in each of the claims of the present application is no more than a method for performing a mental act contrary to section 1(2)(c). As indicated above however, before refusing the present application under section 18(3), I am prepared to give the applicant an opportunity to amend the specification with a view to overcoming this objection. Since the period during which an appeal may be lodged against this decision is six weeks from the date of the decision as set out below, and that as a result the period for putting the application in order is extended until the end of that period by virtue of section 20(2), it is I think sensible to allow the applicant until the end of that period in which to submit amendments, If no satisfactory amendment is submitted in that period, I shall refuse to allow the application to proceed. I would observe in this respect however that the applicant would be well advised to submit any amendments at least two weeks before the end of the period in order to give the examiner a reasonable time in which to consider them and to agree any further amendments that may be necessary.

Dated this 18th day of May 1993.



D M HASELDEN

Principal Examiner, acting for the Comptroller

THE PATENT OFFICE

