BL O/047/06

13 February 2006

PATENTS ACT 1977

APPLICANT Raytheon Company

ISSUE Whether patent application number GB 0218848.0 complies with section 1(2)

HEARING OFFICER R C Kennell

DECISION

Background

1 The above patent application was filed on 14 August 2002 and published under serial no. GB 2381614 on 7 May 2003. Commencing with the issue of the first substantive examination report on 13 October 2004, four rounds of substantive examination and amendment - necessitated in part by a change of practice on the part of the Patent Office as explained below - have failed to overcome an objection by the examiner that the invention is excluded from patentability under section 1(2) of the Act. The matter therefore came before me at a hearing on 30 January 2006; the applicant was represented by his patent agent Mr John Lawrence of Barker Brettell, assisted by Mr Paul Matthews, and the examiner, Dr Mark Gainey, also attended.

2 It was common ground that the claims to be considered were those submitted with the agent's letter of 23 December 2005 in response to the most recent examination report, and that these were distinguished for novelty and inventive step from the prior art that had previously been cited by the examiner. Having read the prior art, I accept that this indeed the case.

The application

3 The application is concerned with improving the management of inventories of fixtures, equipment, equipment racks and systems in an industrial or business organisation, and the use of such inventories to relocate or reconfigure existing facilities. As the specification explains, even where the inventory information was stored in a computer database, previous systems

have relied on text descriptions of the items therein, with the result that considerable time and effort was required to track the movement of items to be relocated and to assign them to a facility by trial and error.

4 In contrast the invention creates a database of information defining the facility and the layout therein of the various items and a database of information about the items themselves. These include both text and pictorial information (eg AutoCAD drawings, digital photographs) which can be displayed in a web browser or via an intranet. The items are defined down to various levels of detail so that the user has the ability to "drill down" by point-and-click techniques to view a facility at a desired level of detail.

5 The independent claims now proposed comprise two sets of method and apparatus claims. The method claims 1 and 25 respectively read:

> "1. A method for generating and displaying inventory data for a facility, comprising:
> creating a database of information defining the facility and layout of any fixtures, equipment, equipment racks, and systems in the facility, the facility and layout information including above and under floor connection capabilities;
> creating a database of information defining any of the fixtures, equipment, equipment racks, and systems in the facility;
> receiving individual digital images of the facility, fixtures, equipment racks and systems for storage in the created databases;
> assigning identification information to the defined fixtures, equipment, equipment racks and systems to create an identification database;
> storing the created databases in one or more memory locations of a computer network;
> *providing an overall and interactive graphical map, of the facility and layout of the fixtures, equipment, equipment racks, and systems in the facility utilising the information stored in the created databases; and*
> *in response to a user selection of one of the equipment racks shown in the graphical map, providing a synthesised visual representation of the selected equipment rack and associated equipment from the individual digital images of the equipment stored in the created database*"
>
> 25. A method for generating and displaying inventory data for a facility comprising:
> creating a database of information defining the facility and layout of any fixtures, equipment, equipment racks and systems in the facility, the facility and layout information including above and under floor connection capabilities;
> creating a database of information defining any of the fixtures, equipment, equipment racks and systems in the facility, *the information including the height and width of the equipment*;
> receiving digital images of the facility, fixtures, equipment, equipment racks and systems for storage in the created databases, the digital images including digital photographs of the equipment;
> assigning identification information to the defined features, equipment,

equipment racks and systems to create an identification database;
storing the created databases in one or more memory locations of a computer network; and
providing an interactive visual representation of the facility and fixtures, equipment, equipment racks and systems in the facility utilising the information stored in the created databases, including displaying edited versions of the digital photographs providing an accurate representation of the pieces of equipment in height and width relative to each other."

Claims 21/26 are to apparatus for managing the configuration of fixtures, equipment, equipment racks and systems in a facility, and are drafted in corresponding terms to the method claims.

6 The features italicised, which I shall refer to respectively as the "synthesising" and "editing" features have been introduced by the applicant in order to avoid the cited prior art; they are mentioned in the specification as originally filed, at page 13 line 9 - page 14 line 5 and page 12 lines 19 -25, but with little beyond that to show how they might be put into practice. I shall return to that point later in the decision.

The law

7 The question for determination is whether this advance resides in a field which is excluded under section 1(2), which states (emphasis added):

> *"It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of -*
>
> *...*
>
> *(c) a scheme, rule or method for* ***performing a mental act****, playing a game or* ***doing business****, or a* ***program for a computer****;*
>
> *(d) the* ***presentation of information****;*
>
> *but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such."*

8 It was common ground at the hearing that, following the change announced in the Office's practice notice "Patents Act 1977: Examining for Patentability" dated 29 July 2005, the test for the examiner to apply was now that adopted by Peter Prescott QC, sitting as a Deputy Judge of the High Court in *CFPH LLC's Application* [2005] EWHC 1589 (Pat). This requires a two-step approach: first to identify the advance in the art that is said to be new and not obvious and susceptible of industrial application, and second to determine whether it is new, not obvious and susceptible of industrial application under

the description of an invention in the sense of Art 52 of the European Patent Convention (EPC) which section 1(2) reflects.

Argument

9 At various times during the prosecution of this application, objection has been raised under section 1(2)(c) and (d) that the invention relates to a program for a computer, a mental act, a business method and the presentation of information. However, following discussion of the latest amendments between the examiner and Mr Lawrence, objection is now pressed only on the first two of these grounds, and it was those to which Mr Lawrence directed his arguments at the hearing.

10 Mr Lawrence made a number of general points as to how I should approach these issues. As he correctly pointed out *R v Patents Appeal Tribunal ex p Swift* [1962] RPC 37, decided under the "manner of new manufacture" provisions of the Patents Act 1949 which are the nearest predecessor to section 1(2), urged the need to give the benefit of any doubt in deciding what was patentable. More recently, the Patent Office's Practice Notice regarding Computer Programs [1999] RPC 563, reflecting European Patent Office (EPO) Board of Appeal decisions T0935/97 and T1173/97 *IBM/Computer Program Product II*, had shown that computer programs could be patentable where they involved a technical advance; whilst in the field of diagnostic methods, Opinion G1/04 *Diagnostic Methods* of the EPO Enlarged Board of Appeal was illustrative of a view that the exclusions of Art 52 EPC ought to be narrowly construed.

11 Mr Lawrence took the view that the ammunition was there for me either to allow or not to allow the application to proceed, and reminded me that I ought not to take a preconceived view of what might be patentable and then look for justification to support that view. I agree that this is the approach I should adopt, and that I should treat the case on its own merits. However, I think that there is limited assistance that I can gain from the statements of general principle in the above cases, and that in relation to computer programs and mental acts I need to look primarily at how the provisions of section 1(2)(c) and the corresponding Art 52 EPC have been interpreted by the courts in the UK and by the EPO Boards of Appeal, having regard to the fact that section 1(2) is amongst those sections of the Act which are by virtue of section 130(7) framed to have, as nearly as practicable, the same effects in the UK as the corresponding provisions of the EPC.

12 I now turn to the specific argument in Mr Lawrence's letter of 23 December 2005 accompanying the above amendments. The point that he makes is that whilst it is easier and quicker for a user to identify an object from its appearance than a text description, providing digital images of the necessary detail (ideally photographs) can be problematic when dealing

with large industrial facilities, because a single overall view containing realistic digital images of all of the objects therein can be very complex and require a lot of processing power. The invention therefore provides a simplified overall graphical map of the layout, from which a user can select an equipment rack and view in greater detail a representation of it, the representation having been synthesised from individual digital images of the components of the rack which are stored in the database. The user is therefore provided only with visual representations of the selected racks, thus reducing the burden on the processor. Further, producing the visual representations of the equipment racks from digital images of the equipment rather than the completed racks increases flexibility by allowing the system to adapt to a greater variety of combinations of equipment in a rack without requiring a new digital image of the rack to be put into the database.

13 As to the editing feature, Mr Lawrence identifies a problem with using digital photographs in that the dimensions of the images depend on the manner in which the photograph is obtained and that it is accordingly necessary to edit the images so as to show the equipment in the correct proportions.

14 As Mr Lawrence saw it, the invention was a system with a functionality in that it built up a display image from a library of images, but only built up in detail those parts in which the viewer was interested. It was about both how to create a display of what was wanted in the specific field of inventory management and in deciding what was wanted. It did not lie solely in excluded areas.

15 On the question of whether this constituted a mental act, Mr Lawrence suggested that the method of the invention involved carrying out physical activities such as creating databases, assigning information and providing an interactive graphical map, whilst the apparatus claims represented a substantial piece of hardware, unlike mental acts. He emphasised that the whole point of the invention was to display the map to someone and did not accept the examiner's suggestion that this all related to steps which could be gone through in the mind; rather it was all about physical interactions with the real world which someone else could perceive. Further, no-one would mentally approach this sort of problem by assembling a representation from parts they had seen before. Although he did not think it was necessary, Mr Lawrence suggested that if it would help he would be willing to re-draft the claim in terms of a display. Indeed he left for my consideration a possible manufacturing claim drafted in terms of a method of manufacturing a facility comprising generating and displaying a graphical map and configuring or re-configuring equipment &c in accordance with the layout in the map.

16 I noted that in one of the cases to which Mr Lawrence referred me - *Fujitsu Ltd's Application* [1997] RPC 608 - Aldous LJ held that claims had to be

looked at as a matter of substance. Although he had declined to decide whether the claims in that case related to a mental act as well as a computer program, and his comments on the former aspect were *obiter*, he had favoured the view - referring to his earlier decision in *Wang Laboratories Inc's Application* [1991] RPC 463 - that the concept of a method for performing a mental act should not be construed as only covering methods which the human mind carries out, but should include all methods of the type performed mentally.

17 Mr Lawrence accepted that *Fujitsu* had a point, but felt that there could be a danger of starting from the premise that any software could be regarded as a mental act and pointed to Pumfrey J's recent judgment in *Halliburton Energy Services v Smith International* [2005] EWHC 1623 (Pat) and the rather more venerable decision of the EPO Board of Appeal in T 208/84 *VICOM/Computer related invention* as software inventions which had been allowed and which in his view were essentially "mental acts dressed up as something else". He noted that in *Halliburton* Pumfrey J had expressed sympathy with the approach taken by the EPO Board of Appeal in T 0435/91 *IBM/Method for physical VLSI-chip design*, where it was held allowable to restrict an unallowable claim to a method of designing an image to a method of making a VLSI chip by adding the words "and materially producing the chip so designed". Mr Lawrence thought this was essentially saying "Put a verb in at the end and it's no longer a mental act".

18 I put the questions to Mr Lawrence whether the invention was anything more than the computerisation of the mental process that needed to be gone through when configuring or re-configuring a facility, and - in relation to the examiner's argument that the invention was also excluded as being for a computer program - whether indeed it had any existence outside a computer. Mr Lawrence thought the invention was more properly regarded as a new tool which was less burdensome because of the way that the pictures were displayed rather than because it was a computer, and (as explained above) that it was essentially concerned with creating a display.

19 On whether the invention related to a computer program, Mr Lawrence accepted the reasoning in the hearing officer's decision in *Oracle Corporation's Application* BL O/254/05 as to what constitutes a program. As was stated at paragraph 14 of the decision (in relation to claims to a method of converting text from one mark-up language to another but which seem to me to be of general applicability) :

> *"... A flow-chart representing a process to be carried out using a computer would not normally be described as a computer program because it is not in a form that enables it to be executed directly by a computer. But the same could be said of most computer programs written in high-level, or source, languages - ie they need to be converted (eg "compiled") into a low-level, or object, code*

before they can be executed directly by a computer. On this basis it seems to me that any set of rules or procedures that are intended to be carried out by a computer may reasonably br regarded as a program for a computer, howsoever those rules or procedures are defined. ..."

20 It was perhaps not surprising that the "little man" prayed in aid by the Deputy Judge in *CFPH* made an appearance. As he states at paragraphs 103 and 104:

"103. It was the policy of the "computer program" exclusion that computer programs, as such, could not be foreclosed to the public under patent law. (Copyright law is another matter.) They would be foreclosed if it was possible to patent a computer when running under the instructions of the program, for example, or magnetic disk when storing the program.

104. But the mere fact that a claimed artefact includes a computer program, or that a claimed process uses a computer program, does not establish, in and of itself, that the patent would foreclose the use of a computer program. There are many artefacts that operate under computer control (eg the automatic pilot of an aircraft) and there are many industrial processes that operate under computer control (eg making canned soup). A better way of doing these things ought in principle, to be patentable. The question to ask should be: is it (the artefact or process) new and non-obvious merely because there is a computer program? Or would it still be new and non-obvious in principle even if the same decisions and commands could somehow be taken and issued by a little man at a control panel, operating under the same rules? For if the answer to the latter question is "Yes" it becomes apparent that the computer program is merely a tool, and the invention is not about computer programming at all. It is about better rules for governing an automatic pilot or better rules for conducting the manufacture of canned soup."

21 Drawing my attention again to *Halliburton* and *VICOM*, and to the *IBM* decisions T0935/97 and T1173/97 concerning software recorded on data carriers, Mr Lawrence thought that the fact that an invention was implemented in software was not decisive of the matter. It was quite clear that there were a huge number of inventions which could be defined in terms of software which were patentable because the invention was what the tool does, the tool being the software. Mr Lawrence suggested that it was necessary to distinguish whether the software was the "servant" (merely the tool which did what you directed it to do) or the "master" (the heart of the invention). Here he thought that the heart of the invention was the realisation that there was a problem to be solved which required an interactive display, and that this was not really a matter of software. What the applicant had done was to find a way of reducing the processing burden so as to display a faithful facsimile representation of that particular article that was of interest out one of around 100,000 images, and to avoid displaying in great detail what wasn't needed.

22 The examiner had found no suggestion that the invention was to be realised other than by a computer program. However, even if software was the most likely way of doing it, Mr Lawrence said that the invention did not have to be implemented in software and it was perfectly possible to envisage the "little man" carrying out all the steps of the invention by manual means. He painted for me an intriguing picture of how this might work in practice, which I perhaps do not need to go through in detail but which I accepted was not a million miles away from my past experiences of planning office moves involving optimising the placing of furniture and equipment.

Assessment

23 Having regard to the above arguments, I think my starting point must still be that, as in *Fujitsu*, what is important is the substance of the invention rather than the precise form in which it is claimed. Although *Fujitsu* was decided on the old "technical contribution" basis, I do not see anything in the more recent case law such as *CFPH* and *Halliburton* which should lead to a different conclusion. That is emphasised in paragraph 7 of the Patent Office's recent practice notice, which states:

> "In *Halliburton* Pumfrey J went on to consider whether a patent claim whose contribution was merely in excluded subject matter could be rendered patentable by adding an industrial step and concluded it could in that particular case. The Office does not interpret this as meaning that adding on such a step will always or even usually render a claim patentable. Indeed to interpret it this way would be inconsistent with much UK and European case law which has consistently held that a non-patentable invention cannot be rendered patentable simply by claiming it in a different guise. Such an interpretation would also be inconsistent with the *CFPH* approach in general and with the specific comments in paragraphs 25 and 103 of that judgment. However, *Halliburton* does show that there can be circumstances in which the way a claim is expressed can affect its substance, and *CFPH* makes the same point when it discusses the distinction between what it calls "hard" and "soft" exclusions."

24 I believe this to be a correct statement of the principles which should govern my assessment. However, in fairness to Mr Lawrence, I should say a little more about *Halliburton*, as this was one of the cases on which Mr Lawrence relied to show how what was essentially a software invention could be patentable and avoid both the mental act and computer program exclusions of section 1(2).

25 I confess that I do not find *Halliburton* altogether easy to reconcile with the approach in *CFPH*. This applies particularly to Pumfrey J's view at paragraphs 215 - 218 of *Halliburton* that the objection was to width of claim and could met by limitation of the claim to its technical field. However, I think it is important that there should be a suitable non-excluded field (using the language of *CFPH*) which can act as the focus of such a limitation. I accept

that it might well have been possible in *Halliburton*, were it not for insufficiency of disclosure, to have rescued a claim to a method of making a drill bit, and that it was found possible in the VLSI case to which Pumfrey J referred to claim a chip designed by the method of the invention. However, I think it is important that such a limitation does not simply become a way of using the form of the claim to get round the inherent unpatentability of an invention.

26 I do not therefore think that an invention which is unpatentable as relating to a mental act or to a computer program can be made patentable simply by drafting the invention in terms of hardware or as a display system, or that a mental act becomes patentable simply because it can be written in terms of a physical method or as apparatus. I certainly do not regard *Halliburton* as any authority for Mr Lawrence's proposition that adding a "doing" type of verb to a claim will dispose of a mental act objection - that is nowhere stated or implied in Pumfrey J's judgment as I read it, and I do not think his comments about appropriate method limitations were intended to go that far.

27 I think the more fundamental concern which I must address is whether there is a patentable advance in the synthesising and editing features because of the reduced processing burden and increased flexibility arising from the ability to synthesise and display a particular item with an accurate representation of its width and height relative to other items. I do not for one moment doubt that this is a practical tool which will considerably ease the lot of those faced with the task of configuring industrial and business facilities, but that ultimately is not decisive of the matter.

28 I do not think this is a case where the "little man" of *CFPH* can offer me much assistance. That test was postulated as a means of deciding whether an artefact or process was new and non-obvious because there was a computer program or because the invention really related to better rules for carrying out for doing something, which could in principle be carried out by the little man instead of by a computer. As the examiner has pointed out, and as was explained by the hearing officer in the *Oracle* decision mentioned above, this test has its limitations and is inappropriate where replacing the computer with a little man would actually defeat the purposes of the invention. I agree.

29 In the present case, and despite his ingenuity in showing how a little man could carry out all the steps of the invention, I cannot accept Mr Lawrence's contention that the invention does not have to be embodied in software. It is apparent from the specification of the patent application that the invention is concerned with replacing entirely the manual element in designing facilities from inventories of equipment by a computerised system. I accept that the claims are not drafted in terms of a program as such, but they set forth the rules and procedures which will be necessary to get the computer to operate

in the desired manner and can therefore be regarded as relating to a computer program as explained in the *Oracle* decision.

30 I have some sympathy with Mr Lawrence in that there is undoubtedly an advance in that the load on the processor is reduced by enabling only those pieces of equipment which are selected to be synthesised in detail. However, it seems to me that this advance arises simply because a program has been devised which tells the processor to do less work. I think this is somewhat different from the situation in the EPO Board's decision in *VICOM*, another case relied on by Mr Lawrence. As pointed out by Aldous LJ in *Fujitsu*, the technical advance in *VICOM* was not altogether easy to ascertain, but fundamentally it appeared that there was an enhancement of the quality of the image produced by the manipulation of data according to the mathematical technique of the invention.

31 I think that the reasoning of Aldous LJ in *Fujitsu*, although he was applying the "technical contribution" test which then held sway, still carries force. In *Fujitsu* the invention related to a method and apparatus for combining data relating to two crystal structures in order to model a new structure. Finding that the invention was excluded as relating to a computer program, Aldous J stated in the paragraph bridging pages 618 - 619 of the RPC:

> " ... In the present case the combined structure is the result of the directions given by the operator and use of the program. The computer is conventional as is the display unit. The two displays of crystal structures are produced by the operator. The operator then provides the appropriate way of superposition and the program does the rest. The resulting display is the combined structure shown pictorially in a form that would in the past have been produced as a model. ... "

32 I note that in *Fujitsu* Aldous LJ had some doubt about whether there the method was one of performing a mental act as well as a computer program, on the basis that there was an element of operator control. There is also an interactive element in the present case by reason of providing an interactive graphical map so that the user can select items to be displayed. For this reason - although I do not accept Mr Lawrence's argument that the presence of verbs representing actions necessarily takes the invention outside of the ambit of a mental act - I also will leave open the question whether the invention relates to a mental act as well as to a computer program.

33 As I have explained above, the examiner did not at the hearing press objections previously raised that the invention also related to a method for doing business and to the presentation of information. Although I make no decision on these grounds, I would add for completeness that I am satisfied on the basis of Mr Lawrence's arguments at the hearing that the invention is not solely about the presentation of information. I take no view whether the invention relates to a method "for" doing business as required by section

1(2).

Conclusion

34 In accordance with section 1(2) I have found that the invention is not patentable because it relates to a computer program as such.

35 The examiner noted at the hearing that there was no specific description of the synthesising and editing features. Mr Lawrence thought that it would nevertheless be apparent to the skilled man how these features would be embodied in practice. Whilst I have my doubts on that score, the matter was not fully argued at the hearing. In any case, in view of my conclusion below about possible amendment of the application, I do not think this is a matter that I need to decide at this stage.

36 Mr Lawrence urged me to afford an opportunity to file amended claims if necessary, but having considered the matter carefully I cannot conceive of any form of claim which would - in substance rather than form - avoid my finding above. I have had regard to all the claims which were filed on 23 December 2005 and to the claim to a method of manufacturing a facility which Mr Lawrence suggested at the hearing.

37 One possibility suggested by Mr Lawrence was to include a disclaimer excluding whatever the Patents Act excluded. However I do not think such a disclaimer would be clear in scope, because it would beg the very question which I have to decide of whether the invention is so excluded. I do not think this is a road down which I should travel.

38 I therefore refuse the application in accordance with section 18(3) of the Act.

Appeal

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

R C KENNELL
Deputy Director acting for the Comptroller