Intellectual Property Office

BL O/154/21

11 March 2021

PATENTS ACT 1977

APPLICANT	Imosphere Limited
ISSUE	Whether patent application GB1302387.4 complies with section 1(2) of the Patents Act 1977
HEARING OFFICER	Phil Thorpe

DECISION

Introduction

1. Patent application GB1302387.4 was filed on 11th February 2013 and was published as GB 2510626 on 13th August 2014.

2. Despite several rounds of correspondence between the examiner and the applicant's attorney, the applicant has been unable to satisfy the examiner that the application meets the requirements of the Act. In particular, the examiner remains of the opinion that the claimed invention is excluded from patentability as a program for a computer.

3. In a letter from the applicant's representative, Potter Clarkson LLP, of 2nd November 2020 the applicant requested a decision based on the papers on file.

The Invention

4. The use of standardised forms by different organisations can provide a consistency in data capture as well as making analysis of data easier. However, organisations may prefer to add to, delete from or amend a standardised form to allow for slightly different data capture requirements. The invention aims to facilitate this use of variations in forms whilst still providing consistency of data entry and ease of processing and analysis of entered data. It also aims to provide version control of the forms.

5. According to the invention, the creator or owner of a particular form is given a unique domain identifier. The type of form used may also has a unique identifier. For example, a national health service registration form may be distinct from a Nottingham City Hospital registration form (i.e. the form type is the same, but the domain is different). Likewise, a national health service registration form may be distinct from a national health service prescription form (i.e. as the domain is the same but the form type is different).

6. The different form types may also have differing data entry fields as shown in the following figure:

Data entry fields present in forms of particular type and domain		Domain			
		NHS	Hospital 1	Hospital 2	Hospital 3
Form type	Registration form	Name Gender Age Address		Name Gender Age Address Height	
	Prescription form	Drug Quantity Dose			
	Assessment form	Symptom Severity Diagnosis	Symptom Severity temperature Diagnosis		Symptom Severity Heart-rate Diagnosis

7. Each data entry field, as well as each respondent (instance), can also be given an identifier as shown below.

I_1	I_2	I_3	I_4	I_5	Interpretation
x.					Domain 'x'
0.					Global domain NHS
1.					Local Domain 'Hospital 1'
2.					Local Domain 'Hospital 2'
3.					Local Domain 'Hospital 3'
#.	x.				Form type 'x'
#.	1.				Form type Registration
#.	2.				Form type Prescription
#.	3.				Form type Assessment
#.	#.	x.			form instance 'x'
#.	#.	1.			form instance 1
#.	#.	2.			form instance 2
#.	#.	3.			form instance 3
#.	#.	#.	x.		data input field 'x'
#.	1.	#.	1.		data input field name
#.	1.	#.	2.		data input field gender
#.	1.	#.	3.		data input field age
2.	1.	#.	4.		data input field address
#.	2.	#.	1.		data input field Drug
#.	2.	#.	2.		data input field Quantity
#.	2.	#.	3.		data input field Dose
#.	3.	#.	1.		data input field Symptom
#.	3.	#.	2.		data input field Severity
#.	3.	#.	3.		data input field Diagnosis
1.	3.	#.	4.		data input field Temperature
3.	3.	#.	4.		data input field Heart rate

8. Each data entry field for each form can then be associated with a multi-character expression. For example, the entry field associated with age of respondent or instance 2, Carol, on the registration form for hospital 3 would be 3.1.2.3.

9. Where a data field entry only has a limited number of possible responses, eg gender, then each option may be represented by a separate multi-character expression. Alternatively, the discrete response could be captured. For example, if Carol is 32 years old then the multi-character expression for her data input would be 3.1.2.3.32

10. Validation rules can be provided, and these can be linked to a form item id so that they can be applied to any form having that form item id. Figure 2l shows such a rule for the form item id relating to the age prompt.

Figure 2l

Form Item Id	Rule	Value
2	Minimum numeric value	0
2	Maximum numeric value	150

11. As each data response stored in the database comprises information about the domain and the type of form used to enter the data, the data responses provided using the local domains and the global domains may be stored in a single database. Likewise, data responses provided using different types of form may be stored in a single database. The use, across different forms, of standard validation rules linked to particular form item identifiers may also improve data integrity.

12. The claims under consideration were filed on 3rd July 2020. Claim 1 reads as follows:

> *A system for processing multiple forms, wherein each form comprises at least one data input field and each data input field is configured to enable a respondent to enter input data into the form, the system configured to process a multi-character expression comprising one or more domain characters representing a domain; and one or more field characters representing at least one data input field of the form, wherein the one or more domain characters is indicative of variations in one or more of: data input fields in the form; discrete values of possible data inputs; and validation logic associated with the at least one data input field, and wherein the structure of each form is defined by a dataset, the dataset comprising: a plurality of first multi-character expressions, each first multi-character expression defining a respondent prompt; and respective associated second multi-character expressions, each second multi-character expression defining a data input field, and wherein the dataset comprises a form item identifier for each combination of a said first multi-character expression and respective associated second multi-character expression, and wherein validation logic is associated with a said form item identifier.*

13. There are also independent claims to a computer-implemented method and computer program which include much of the wording of claim 1 and I am satisfied that they stand or fall with claim 1.

The Law

14. The examiner has raised an objection under section 1(2) of the Patents Act 1977 that the invention is not patentable because it relates a category of excluded matter. The relevant provisions of this section of the Act are shown with added emphasis below:

1(2) It is hereby declared that the following (amongst other things) are not inventions for the purpose of the Act, that is to say, anything which consists of..

*(c) … **a program for a computer**;*

but the foregoing provisions shall prevent anything from being treated as an invention for the purposes of the Act only to the extent that a patent or application for a patent relates to that thing as such.

15. As explained in the notice published by the IPO on the 8th December 2008[1], the starting point for determining whether an invention falls within the exclusions of section 1(2) is the judgment of the Court of Appeal in *Aerotel/Macrossan*[2].

16. The interpretation of section 1(2) has been considered by the Court of Appeal in *Symbian*[3]. *Symbian* arose under the computer program exclusion, but as with its previous decision in *Aerotel* the Court gave general guidance on section 1(2). Although the Court approached the question of excluded matter primarily on the basis of whether there was a technical contribution, it nevertheless (at paragraph 59) considered its conclusion in the light of the *Aerotel* approach. The Court was quite clear (see paragraphs 8-15) that the structured four-step approach to the question in *Aerotel* was never intended to be a new departure in domestic law; that it remained bound by its previous decisions, particularly *Merrill Lynch*[4] which rested on whether the contribution was technical; and that any differences in the two approaches should affect neither the applicable principles nor the outcome in any particular case.

17. Subject to the clarification provided by *Symbian*, it is therefore appropriate to proceed on the basis of the four-step approach explained at paragraphs 40–48 of *Aerotel* namely:

(1) Properly construe the claim.

(2) Identify the actual contribution (although at the application stage this might have to be the alleged contribution).

(3) Ask whether it falls solely within the excluded matter.

(4) If the third step has not covered it, check whether the actual or alleged contribution is actually technical.

Applying the Aerotel test

Step 1 - Properly construe the claim

18. The claim is generally clear and hence I need say no more on construction.

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[1] http://www.ipo.gov.uk/pro-types/pro-patent/p-law/p-pn/p-pn-computer.htm
[2] *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371; [2007] RPC 7
[3] *Symbian Ltd v Comptroller-General of Patents*, [2009] RPC 1
[4] *Merrill Lynch's Appn*. [1989] RPC 561

Step 2 – Identify the actual contribution

19. Jacob LJ addressed this step in *Aerotel/Macrossan* where he noted:

> "*43. The second step — identify the contribution — is said to be more problematical. How do you assess the contribution? Mr Birss submits the test is workable — it is an exercise in judgment probably involving the problem said to be solved, how the invention works, what its advantages are. What has the inventor really added to human knowledge perhaps best sums up the exercise."*

20. Jacob LJ goes on to say that in the end:

> *"the test must be what contribution has actually been made, not what the inventor says he has made*".

21. The examiner in their pre-hearing report of 11th December 2020 discusses the contribution in paragraphs 8-14 which read as follows:

> 8. Pages 1 & 2 of the description set out that there is a need to provide more flexible customised forms without losing the benefits associated with standardised forms (consistent data capture; good cross-compatibility) and which provides for good version control and aggregation and searching of data captured via different form versions. The proposed invention uses the claimed multi-character expressions to represent form information. This is advantageous in that information relating to forms of different types and domains can be stored in a single database and searched more easily by creating queries based on the characters of the multi-character expressions (see e.g. page 13 line 13 to page 14 line 2).
>
> 9. However, using multi-character expressions to represent information in a database is known, as admitted in page 2 lines 13-33 of the description (at least) which refer to the prior art. Page 2 line 35 to page 3 line 5 goes on to explain that "in the present invention, the inventors have recognised that the methods of use of the multi-character expressions discussed in GB 2293697B and GB 2398143B, and the benefits thereof, can be adapted and used in techniques for improving the integrity of data input forms and datasets captured using those forms, and for helping provide version control of the forms. The multi-character expressions can be adapted for use not only for determining how captured data is stored and accessed in a database, but also how data entry forms for capturing data can be controlled and managed between different entities using the forms and variations thereof."
>
> 10. Although the prior art does not relate to the use of multi-character expressions specifically as applied to *data entry forms*, I objected that this was an obvious application in my report dated 4 March 2020. In response, you amended the claims and provided arguments focusing on i) the use of first and second multi-character expressions for representing respondent prompts and associated data input fields and ii) a form item identifier for linking each combination of those first and second expressions to validation logic. In your agent's letter dated 3 July 2020, the arguments on excluded matter focus solely on these two aspects when defining what technical contribution your proposed invention makes. In my view, it is these two linked aspects of the proposed invention that are central to what has *actually* been added to human knowledge rather than the more general use of multi-character expressions to represent information (such as information relating to a data entry form) in a database.
>
> 11. The first aspect – having first expressions for respondent prompts and second expressions for data input fields – is said to be advantageous as it allows prompts and input fields to be re-used in different combinations. An example is given at page 16 lines 24-27: "For example, as shown in figure 2h, the user has created a new respondent prompt question "Gender of partner" but has reused the data input field

"Genders". This allows the user to create a new prompt/field combination by only creating one new respondent prompt (which is shown in figure 2j)".

12. The second aspect – having a form item identifier associated with validation logic and linked to pairs of first and second expressions – is advantageous as it allows validation of the input data to ensure data integrity (see page 16 lines 29-34). However, I have also noted that, in general, the use of validation logic to check that the inputs to data entry forms conform to certain requirements is well known. For example, the skilled person would be well aware at the priority date of data entry forms requiring a numerical input in response to an age prompt, or ensuring that a password input into a password field contains certain characters (see e.g. https://en.wikipedia.org/w/index.php?title=Data_validation&oldid=533515876 for further examples of data validation).

13. What has been contributed is not the concept of data validation for data entry forms itself, but rather a particular way of associating validation logic with the multi-character expressions. Specifically, this is achieved through use of a form-item identifier linked to pairs of respondent prompts and data input fields. This would appear to be a convenient way of associating validation logic with a data entry form that uses multi-character expressions for its underlying structure in the database.

14. Taking all of the above into account, I have assessed the actual contribution to be:

> a computer-implemented method of using first and second multi-character expressions to represent respondent prompts and associated data input fields of a data entry form respectively, where pairs of first and second expressions are linked to a form item identifier with associated validation logic. This provides for flexibility in how forms are used (e.g. through re-use of prompts/input fields) and provides a convenient way to integrate data validation with the forms for ensuring the integrity of input data."

22. The applicant has not specifically challenged this assessment of contribution. The arguments it makes in relation to whether the contribution is technical which I will come to shortly are however consistent with the examiner's assessment of contribution and therefore I am content to adopt it as a fair representation of the contribution.

Steps 3 and 4 Ask whether it falls solely within the excluded matter and check whether the actual or alleged contribution is actually technical.

23. The applicant argues that the claimed invention provides a technical contribution in two ways. Firstly, it notes that having separate multi-character expressions for each respondent prompt and data input field allows the user to re-use these in different combinations. This it claims:

> "provides for improved user interface functionality, whereby respondent prompts or data input fields can be more efficiently reused by a user, which reduces the complexity of the human-machine interaction".

24. I accept that the invention does provide the improvements identified by the applicant. It allows a user to more efficiently create and modify a form using previously defined features. However, the way that the user interacts with the machine ie. the computer as opposed to the program remains unchanged at a technical level. Hence the invention does not provide a better human-machine interface or interaction in a technical sense.

25. The second way that the claimed invention provides a technical contribution according to the applicant is that the validation rules associated with both the first and second multi-character expressions provide for improvement in the integrity of data input. It argues that systems that provide such integrity are generally technical. I am not persuaded that that is the case in general and certainly not here. What the invention here does is to link entirely conventional validation rules with the multicharacter expressions as part of the programming. There is nothing to suggest that this is technical in any way. It does not solve a problem, technical or otherwise in a technical way. Rather the association of the validation rule with the various multicharacter expressions provides for consistent rules to be applied across different forms and this saves the user from having to re-enter the precise rules for the same prompt on a different form. This is however simply a reflection of how the program is written or the data is arranged. It is, as noted not a technical solution to a technical problem.

26. Lewison J. (as he then was) set out five signposts *AT&T/CVON*[5] that he considered to be helpful when considering whether a computer program makes a technical contribution. In *HTC*[6] the signposts were reformulated slightly in light of the decision in *Gemstar*[7]. The signposts are:

    i. Whether the claimed technical effect has a technical effect on a process which is carried on outside the computer.

    ii. Whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run.

    iii. Whether the claimed technical effect results in the computer being made to operate in a new way.

    iv. Whether the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer.

    v. Whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

27. It is important to stress that these signposts are just that. They are not barriers or hurdles that need to be individually or collectively overcome by the applicant. They are rather a non-exhaustive list of some of the factors that can indicate in some cases whether a particular contribution may be technical.

28. Whilst the applicant has not referred to any of these specific signposts, I will still however consider them briefly. I doing so however I can find nothing in any of them that would point to the contribution of the invention in issue here being technical. There is nothing to suggest that the computer running the program is

[5] AT&T Knowledge Venture/CVON Innovations v Comptroller General of Patents [2009] EWHC 343 (Pat); [2009] FSR 19
[6] HTC v Apple [2013] EWCA Civ 451
[7] Gemstar-TV Guide International Inc v Virgin Media Ltd [2009] EWHC 3068 (Pat); [2010] RPC 10

itself a better computer in any sense. Any improvement comes from a better program but in this case that does not make the computer any better in a technical sense. The invention clearly does not operate at the architecture level of the computer. Rather it is specific to a particular application.

29. I have discussed the problems that the invention seeks to overcome confirming that there is nothing to suggest that a technical contribution is present. Hence the signposts are of no help to the applicant.

30. Finally taking a further step back I am satisfied that the contribution of the claimed invention relating as it does to processing expressions which represent information related to data entry forms, is a non-technical data processing activity.

Conclusion

31. Having carefully considered the arguments, I am of the view that the contribution falls solely within the matter excluded under section 1(2) as a program for a computer as such. I therefore refuse this application under section 18(3).

Appeal

32. Any appeal must be lodged within 28 days after the date of this decision.

Phil Thorpe

Deputy Director, acting for the Comptroller