

Citation: Optuminsight, Inc (Re), 2022 CACP 5

Commissioner's Decision #1612

Décision du commissaire n°1612

Date: 2022-02-03

TOPIC: J00    Meaning of Art  
          J10    Computer Programs

SUJET: J00    Signification de la technique  
          J10    Programmes d'ordinateur

Application No. : 2,737,278

Demande n° 2 737 278

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2,737,278 having been rejected under subsection 30(3) of the *Patent Rules* (SOR/96-423) as they read immediately before October 30, 2019, has consequently been reviewed in accordance with paragraph 199(3)(c) of the *Patent Rules* (SOR/2019-251). The recommendation of the Patent Appeal Board and the decision of the Commissioner are to refuse the application.

Agent for the Applicant:

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## INTRODUCTION

- [1] This recommendation concerns the review of rejected Canadian patent application number 2,737,278 (the instant application), which is entitled APPARATUS, SYSTEM AND METHOD FOR GRAPHICALLY DISPLAYING NATURAL HISTORY OF DISEASE PROGRESSION” and is owned by Optuminsight, Inc. (the Applicant). A review of the rejected application has been conducted by the Patent Appeal Board (the Board) pursuant to paragraph 199(3)(c) of the *Patent Rules* (SOR/2019-251). As explained in more detail below, the Board’s recommendation is that the Commissioner of Patents refuse the application.

## BACKGROUND

### The Application

- [2] The application, based on a previously filed Patent Cooperation Treaty application, is considered to have been filed in Canada on September 18, 2009. The application was laid open to public inspection on March 25, 2010.
- [3] The application relates generally to disease identification and management, including determining and displaying a user’s current status within a typical progression of a disease. The application has 19 claims on file, received by the Patent Office on January 31, 2018.

### Prosecution History

- [4] On September 5, 2018, a Final Action (FA) was written pursuant to subsection 30(4) of the *Patent Rules*, as they read immediately before October 30, 2019. The FA stated that the instant application is defective because all of the claims on file are directed to subject-matter outside of the definition of invention found at section 2 of the *Patent Act*. The FA also found claims 11 and 17 indefinite and therefore not compliant with subsection 27(4) of the *Patent Act*.
- [5] In a January 30, 2019 response to the FA (RFA), the Applicant submitted arguments in favour of patentability, with a focus on the set of proposed claims submitted with the RFA (the proposed claims).

- [6] As the Examiner still considered the application not to comply with section 2 of the *Patent Act*, pursuant to paragraph 30(6)(c) of the *Patent Rules*, as they read immediately before October 30, 2019, the application was forwarded to the Board for review on May 27, 2019, along with an explanation outlined in a Summary of Reasons. The Summary of Reasons set out the position that the claims on file were still considered to be defective, and that the proposed claims would not cure the primary subject-matter defect.
- [7] In a letter dated June 19, 2019, the Board forwarded to the Applicant a copy of the Summary of Reasons and requested that the Applicant confirm its continued interest in having the application reviewed.
- [8] In a letter dated September 11, 2019, the Applicant confirmed their interest in having the review proceed.
- [9] We reviewed the application on behalf of the Board under paragraph 199(3)(c) of the *Patent Rules*. In a preliminary review letter (PR letter) dated December 16, 2021, we preliminarily analyzed the issues with respect to the claims on file and the proposed claims, including compliance with subsection 27(8) of the *Patent Act*. We also provided the Applicant with an opportunity to make oral and/or written submissions.
- [10] The Applicant declined the opportunity for an oral hearing and indicated that there would be no further written submissions.

## ISSUES

- [11] The issues to be addressed by the present review are:
- Are the claims on file directed to subject-matter which meets the definition of invention found at section 2 of the *Patent Act* and are they compliant with subsection 27(8) of the *Patent Act*?; and
  - Are claims 11 and 17 clear and compliant with subsection 27(4) of the *Patent Act*?
- [12] We also consider the proposed claims.

## LEGAL PRINCIPLES AND OFFICE PRACTICE

### Purposive Construction

- [13] In accordance with *Free World Trust v Électro Santé Inc*, 2000 SCC 66 and *Whirlpool Corp v Camco Inc*, 2000 SCC 67, purposive construction is performed from the point of view of the person skilled in the art in light of the relevant common general knowledge (CGK), considering the whole of the disclosure including the specification and drawings. In addition to interpreting the meaning of the terms of a claim, purposive construction distinguishes the essential elements of the claim from the non-essential elements. Whether or not an element is essential depends both on the intent expressed in or inferred from the claim, and on whether it would have been obvious to the skilled person that a variant has a material effect upon the way the invention works.
- [14] “Patentable Subject-Matter under the *Patent Act*” (CIPO, November 2020) [PN2020-04] also discusses the application of these principles, pointing out that all elements set out in a claim are presumed essential unless it is established otherwise or such presumption is contrary to the claim language.

### Patentable Subject-Matter

- [15] The definition of invention is set out in section 2 of the *Patent Act*:

Invention means any new and useful art, process, machine, manufacture or composition of matter, or any new and useful improvement in any art, process, machine, manufacture or composition of matter.

- [16] Subsection 27(8) of the *Patent Act* also prescribes that:

No patent shall be granted for any mere scientific principle or abstract theorem.

- [17] PN2020-04 clarifies examination practice with respect to the Patent Office’s understanding of the legal principles applicable in determining whether the subject-matter defined by a claim is patentable subject-matter:

To be both patentable subject-matter and not be prohibited under subsection 27(8) of the *Patent Act*, the subject-matter defined by a claim must be limited to or narrower than an actual invention that either has physical existence or manifests a discernible physical effect or change and that relates to the manual or productive arts, meaning those arts involving or concerned with applied and industrial sciences as distinguished in particular from the fine arts or works of art that are inventive only in an artistic or aesthetic sense.

- [18] These principles are derived, in part, from *Canada (Attorney General) v Amazon.com, Inc*, 2011 FCA 328 paras 42 and 66-69.
- [19] *PN2020-04* further describes the Patent Office's approach to determining if a computer-related invention is patentable subject-matter. For example, the mere fact that a computer is among the essential elements of the claimed invention does not necessarily mean that the claimed invention is patentable subject-matter. An algorithm itself is abstract and unpatentable subject-matter. A computer programmed to merely processes the algorithm in a well-known manner without solving any problem in the functioning of the computer will not make it patentable subject-matter because the computer and the algorithm do not form part of a single actual invention that solves a problem related to the manual or productive arts. On the other hand, if processing the algorithm improves the functionality of the computer, then the computer and the algorithm would together form a single actual invention that solves a problem related to the manual or productive arts and the subject-matter defined by the claim would be patentable.
- [20] In *Schlumberger Canada Ltd v Commissioner of Patents*, [1982] 1 FC 845 (CA) [*Schlumberger*], the Court concluded that, although computers were necessary for the invention to be put into practice, the computer did not form part of "what has been discovered" and thus was not relevant in determining whether the claimed invention was patentable subject-matter; the computer was merely being used to make the kind of calculations it was invented to make.

#### Indefiniteness

- [21] Subsection 27(4) of the *Patent Act* requires claims to distinctly and explicitly

define the subject-matter:

The specification must end with a claim or claims defining distinctly and in explicit terms the subject-matter of the invention for which an exclusive privilege or property is claimed.

- [22] In *Minerals Separation North American Corp v Noranda Mines Ltd*, [1947] Ex CR 306, 12 CPR 99 at 146, the Court emphasized both the obligation of an Applicant to make clear in the claims the ambit of the monopoly sought and the requirement that the terms used in the claims be clear and precise:

By his claims the inventor puts fences around the fields of his monopoly and warns the public against trespassing on his property. His fences must be clearly placed in order to give the necessary warning and he must not fence in any property that is not his own. The terms of a claim must be free from avoidable ambiguity or obscurity and must not be flexible; they must be clear and precise so that the public will be able to know not only where it must not trespass but also where it may safely go.

## ANALYSIS

### Purposive Construction

- [23] The FA at pages 3-4 performed a purposive construction that resulted in a set of essential elements for certain claims according to a previous Patent Office practice, now superseded by *PN2020-04*. We undertake anew the identification of essential elements.

- [24] The FA defined the person of ordinary skill in the art (POSITA) as follows:

In view of statements in the description such as in paragraphs [0005]-[0007], the POSITA to whom the application is directed can be characterized as a team of IT professionals and/or healthcare researchers who are familiar with medical record storage, collection and analysis systems and medical patient education systems.

- [25] The Applicant did not comment on this characterization in the RFA, and we adopt it, as we did in the PR letter.

[26] The FA defined the POSITA's common general knowledge (CGK) thus:

Although cited as prior art in a previous office action, document D1 (US 6,234,964) discloses, at column 2, lines 6-40, the following background information which is considered to be CGK:

- "Because of the development of the personal computer and standards, advances can now be made in disease management";
- "Almost all "knowledge based" clinical reasoning could be performed better and [with] more reliability by computers"; and
- "A system that can automate the practice of medicine, especially in disease management, and which encourages and trains patients to play a major beneficial role in their medical health care is highly desired".

The use of computer components, including servers, databases and user interface devices with displaying capabilities in the field of disease management to collect and analyze patient data is also considered to be within the CGK of the POSITA (see D1, column 6, lines 18-37).

[27] The Applicant did not comment on this characterization in the RFA, and we adopt it, as we did in the PR letter.

[28] Independent claim 1, directed to a system, is representative and reads:

A computer system configured to automatically generate a graphical representation of a natural history and progression pathway of a disease, said system comprising:

a data storage device configured to store one or more data sets comprising disease histories of a plurality of individuals; and

a server in communication with the data storage device and with a user interface device through a disease progression application, the user interface device having a device display and being located remotely from the server, the server configured to:



receive a request for a graphical representation of a disease progression state for an individual from the user interface device through the disease progression application, the request including user identifying data for the individual;

generate a health profile for the individual based on the user identifying data included in the request, the health profile including a health administration code;

query a first dataset of the one or more datasets, the first dataset including at least one of insurance claims data, lab data, and pharmacy data;

determine, using the queried dataset, a plurality of historical twins for the individual, the historical twins being associated with the health administration code;

generate a disease progression map based on normalized disease histories of the plurality of historical twins, the disease progression map comprising one or more disease progression states, the disease progression map being generated by a disease progression map builder configured to:

establish a scaling parameter for data associated with the historical twins, the scaling parameter being based on at least one of time increments, disease progression stages, or disease progression states;

align disease progression data of the historical twins using the scaling parameter; and

normalize the aligned disease progression data;

determine a disease progression state associated with the individual in response to the health profile; and

display the graphical representation of the disease progression state with reference to the disease progression map on the device display through the disease progression application.

[29] We adopt the preliminary view of the essential elements of the claims that we

expressed in the PR letter as follows:

Independent claims 10, 11 and 19, directed to a computer program product, a computer-implemented method, and an apparatus respectively, comprise similar elements.

Dependent claims 2 and 12 additionally recite generating the health profile from stored data.

Dependent claim 3 additionally recites authenticating a user from a user credential and automatically generating the health profile.

Dependent claims 4 and 13 additionally recite generating the health profile from user-entered data through an interactive display.

Dependent claims 5 and 14 additionally recite predicting user questions.

Dependent claims 6 and 15 additionally recite cost analysis.

Dependent claims 7 and 16 additionally recite determining a treatment protocol.

Dependent claims 8 and 17 additionally recite identifying a potential co-morbidity.

Dependent claims 9 and 18 additionally recite generating graphical charts.

According to *PN2020-04*, a purposive construction considers where the skilled person would have understood the applicant to have intended to place the fences around the monopoly being claimed.

Considering the whole of the specification, the skilled person would understand that there is no use of language in the claims indicating that any of the elements are optional or one of a list of alternatives. Therefore, in our preliminary view, all elements recited in the claims are considered to be essential, including the computer system components.

#### Patentable Subject Matter

[30] Given that our view of the essential elements differs from that of the FA, and in

view of the updated Patent Office practice, we undertake anew the assessment of patentable subject-matter according to *PN2020-04*.

- [31] As described above in the section "Legal Principles and Patent Office Practice" we assess for each claim whether the subject-matter it defines forms a single actual invention having physical existence or causing a discernible physical effect or change, and relates to the manual or productive arts.
- [32] As we wrote in the PR letter, with respect to independent claims 1, 10, 11 and 19, the recited computer system elements (data storage, computer-readable medium, server, processor, input/output adapter, remote user interface device and display):
- collect and store data via a user interface (and an implied network);
  - perform certain analyses of the data (e.g. generating a health profile, accessing datasets, determining historical twins, generating a disease progression map); and
  - display output data.
- [33] As we wrote in the PR letter, while the computer system elements are essential, the situation is similar to that in *Schlumberger*, where the computer was merely acting in a well-known manner as it was normally designed to do. In our view, following *PN2020-04*, the actual invention is the collection, analysis and display of data, and this constitutes the operation of an abstract algorithm.
- [34] Dependent claim 3 adds user authentication and automatic generation of the health profile in response to authenticating the user. As we wrote in the PR letter, we consider this a normal function of a data processing system which deals with personal private data. The computer carries out authentication in a normal manner in which computers are designed to function. The additional features may provide a convenient and enhanced user experience, but do not provide any discernible improvement to the operation of the computerized elements.
- [35] The remaining dependent claims add additional algorithmic elements, which are purely abstract and are carried out by the computerized elements as they are normally designed to do.

[36] Therefore, in our view, despite the presence of computerized elements, the actual invention is the operation of an algorithm to gather and process certain data and display output data. This is neither physical nor does it provide a discernible physical effect.

[37] In the RFA, the Applicant noted (page 6) that the present invention allows better treatment plans to be developed and allows patients to better understand their disease state. This is not in dispute; however, as we wrote in the PR letter, in our view, output data which improves understanding is of intellectual significance and does not constitute a discernible physical effect.

[38] Therefore, in our view, the claims do not comply with subsection 27(8) of the *Patent Act* and the claims do not define an invention according to the definition found at section 2 of the *Patent Act*.

#### Indefiniteness

[39] The FA considered claim 11 indefinite due to the term “from” [a data storage device]. As we wrote in the PR letter, we agree that it is unclear how a disease state could come from a data storage device. A verb appears to be missing.

[40] The FA considered claim 17 indefinite due to it missing a transitional verb such as “further comprising”. We agree, as we wrote in the PR letter.

[41] In the RFA, the Applicant did not dispute the indefiniteness defects, but submitted proposed claims intended to overcome the defect. We consider these below.

[42] We conclude that claims 11 and 17 on file are indefinite and do not comply with subsection 27(4) of the *Patent Act*.

#### **PROPOSED CLAIMS**

##### Patentable subject-matter

[43] The Applicant submitted a set of 25 proposed claims with the RFA.

[44] In brief, the proposed amendments to independent claims 1, 10, 11 and 19

additionally recite that there are a *plurality* of data storage devices storing a *plurality* of data sets, all accessed by the server. Proposed independent claim 20 is similar to dependent claim 3 on file and recites authenticating a user and automatically generating the health profile.

- [45] In the RFA, the Applicant noted (page 7) that the server communicating with multiple separate data storage components allows accessing different types of data that would otherwise not be accessible to the user. The Applicant further noted with respect to proposed independent claim 20 (page 8) that automatically generating the health profile in response to authenticating the user reduces the time required for an individual or physician to evaluate disease progression.
- [46] As we wrote in the PR letter, in our view, the amendments to recite the server accessing multiple data storage devices and associated datasets do not render the subject-matter patentable. As noted above, the use of servers and multiple data stores is routine in IT fields, including health care. While elements which are CGK and non-inventive in themselves can be part of an actual invention, in this case, the computer network operating in a well-known manner is not being improved, and this remains akin to the situation in *Schlumberger*.
- [47] In our view, as stated above, authentication and carrying out data processing automatically are routine computer operations and are akin to the situation in *Schlumberger*.
- [48] Proposed dependent claims 21-25 add additional algorithmic elements, which, as we discussed above, are purely abstract and are carried out by the computerized elements as they are normally designed to do.
- [49] Therefore, in our view, the proposed claims would neither comply with section 2 nor subsection 27(8) of the *Patent Act*.

#### Indefiniteness

- [50] As we wrote in the PR letter, proposed claims 11 and 17 correct the indefiniteness defects identified above in the claims on file. In our view, these claims would comply with subsection 27(4) of the *Patent Act*. However, since

the proposed claims do not, in our view, overcome the subject-matter defect, they would not constitute necessary amendments in accordance with subsection 86(11) of the *Patent Rules*.

## RECOMMENDATION OF THE BOARD

[51] For the reasons set out above, we recommend that the Commissioner of Patents refuse this application because:

- the claims on file are directed to non-patentable subject-matter and are therefore non-compliant with section 2 of the *Patent Act* and are also non-compliant with subsection 27(8) of the *Patent Act*; and
- claims 11 and 17 on file are indefinite and therefore non-compliant with subsection 27(4) of the *Patent Act*.

[52] The proposed claims do not cure the primary subject-matter defect and therefore do not constitute “necessary amendments” according to subsection 86(11) of the *Patent Act*.

Howard Sandler

Member

Stephen MacNeil

Member

Timothy Scheuermann

Member

## DECISION OF THE COMMISSIONER

[53] I concur with the recommendation of the Board that the application be refused on the grounds that:

- the claims on file are directed to non-patentable subject-matter and are therefore non-compliant with section 2 of the Patent Act and are also non-compliant with subsection 27(8) of the Patent Act; and
- claims 11 and 17 on file are indefinite and therefore non-compliant with subsection 27(4) of the *Patent Act*.

[54] Therefore, in accordance with section 40 of the *Patent Act*, I refuse to grant a patent on this application. Under section 41 of the *Patent Act*, the Applicant has six months within which to appeal my decision to the Federal Court of Canada.

Virginie Ethier  
Assistant Commissioner of Patents

Dated at Gatineau, Quebec

this 3rd day of February 2022