Commissioner's Decision No. 1449
Décision du commissaire n^{o} 1449

TOPICS: J–00 Meaning of Art
J–50 Mere Plan

SUJETS: J–00 Signification de la technique
J–50 Simple plan

Application No. 2,544,147
Demande n^{o} 2 544 147

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2,544,147, having been rejected under subsection 30(3) of the *Patent Rules*, has subsequently been reviewed in accordance with paragraph 30(6)(*c*) of the *Patent Rules*. 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 patent application number 2,544,147, which is entitled "Systems and methods for maintaining the viability of a good-until-bettered order type in electronic trading systems". The patent application is owned by BGC Partners, Inc. The outstanding defect indicated by the Final Action (FA) is that the claims do not define statutory subject-matter, contrary to section 2 of the *Patent Act*. The Patent Appeal Board (the Board) has reviewed the rejected application pursuant to paragraph 30(6)(*c*) of the *Patent Rules*. As explained below, our recommendation is to refuse the application.

BACKGROUND

The application

[2] Canadian patent application 2,544,147 was filed on April 20, 2006 and published on October 20, 2006.

[3] The application relates to electronic trading systems, particularly to refinements of the "good-until-bettered" (GUB) order type used in such systems. Unlike limit orders, which remain listed for trading in an electronic trading system until traded or cancelled, conventional GUB orders are removed from the list also when a better order is placed. The refinements involve additional conditions for removal of GUB orders intended to prevent their manipulation and unwarranted removal.

Prosecution history

[4] On October 2, 2015, an FA was written pursuant to subsection 30(4) of the *Patent Rules*. The FA stated that the application is defective on the grounds that the claims on file (i.e. claims 1 to 119) do not comply with section 2 of the *Patent Act*.

[5] In an April 4, 2016 response to the FA (RFA), the Applicant proposed an additional 48 claims, resulting in a set of 167 claims (the first proposed claims), and submitted arguments for allowance. In particular, the Applicant contended that all the claims, properly construed, include computer hardware components as essential elements of the invention and are thus directed to statutory subject-matter.

[6] As the Examiner considered the application not to comply with the *Patent Act*, the application was forwarded to the Board for review on June 13, 2016, pursuant to subsection 30(6) of the *Patent Rules*, along with a Summary of Reasons (SOR)

maintaining the rejection of the application (in respect of both the claims on file and the first proposed claims) based on the defect indicated by the FA. The Examiner also considered the additional 48 claims (claims 120 to 167 of the first proposed claims) to be obvious.

[7] With an Acknowledgement Letter dated July 13, 2016, the Board acknowledged the transfer of the application from the Examiner to the Board, sent the Applicant a copy of the SOR and offered the Applicant the opportunity to make further written submissions and to attend an oral hearing. With its responses on October 19, 2016 and May 12, 2017, the Applicant made further submissions regarding statutory subject-matter and requested that the review proceed based on the current written record.

[8] The present Panel was then formed to review the application under paragraph 30(6)(*c*) of the *Patent Rules* and to make a recommendation to the Commissioner as to its disposition. Following our preliminary review, we sent a letter on October 5, 2017 (the PR letter) presenting our analysis and rationale as to why, based on the record before us, the subject-matter of the claims on file (as well as of the first proposed claims) does not comply with section 2 of the *Patent Act*. Since the proposed claims could not accordingly be considered necessary amendments under subsection 30(6.3) of the *Patent Rules*, there was no need to assess the obviousness of those claims.

[9] On November 6, 2017, the Applicant replied to the PR letter (RPR) by proposing a new amended set of 119 claims (the second proposed claims) and by providing further arguments on the construction of the claims and the statutory nature of their subject-matter.

ISSUE

[10] The issue to be addressed by this review is whether the claims on file define subject-matter falling within the definition of invention in section 2 of the *Patent Act*.

LEGAL PRINCIPLES AND PATENT OFFICE PRACTICE

Purposive construction

[11] In accordance with *Free World Trust v. Électro Santé*, 2000 SCC 66 [*Free World Trust*], essential elements are identified through a purposive construction of the

claims done by considering the whole of the disclosure, including the specification and drawings (see also *Whirlpool v. Camco*, 2000 SCC 67 at paragraphs 49(f) and (g) and 52). In accordance with the *Manual of Patent Office Practice*, revised June 2015 (CIPO) at §13.05 [*MOPOP*], the first step of purposive construction is to identify the skilled person and his or her relevant common general knowledge (CGK). The next step is to identify the problem addressed by the inventors and the solution put forth in the application. Essential elements can then be identified as those required to achieve the disclosed solution as claimed.

[12] In the RPR, the Applicant disagreed with this approach to purposive construction. Specifically, the Applicant contended that the essential elements should include those essential to the invention as worded in the claim, not only those required to achieve the solution:

> While it is possible that elements that are required to achieve the disclosed solution as claimed may be essential elements, there is no support for the proposition that only those elements which are required to achieve the claimed solution are essential. As stated previously, the test for essentiality is outlined in *Free World Trust*.
>
> …
>
> In accordance with the above-noted passage, it is entirely possible that elements considered by the Examiner to form part of the "operating context" are essential nonetheless, because they cannot be substituted or omitted without causing the invention (i.e. the claimed invention) to [not] perform substantially the same function in substantially the same way to obtain substantially the same result.
>
> …
>
> The passage on page 6 from MOPOP to the effect that "not every element that has a material effect on the operation of a given embodiment is necessarily essential to the solution" is not untrue, but the language chosen is of paramount importance. The passage in MOPOP uses the language "essential to the solution", as opposed to "essential to the invention". Since the currently accepted legal test for essentiality is whether the omission or substitution of a claim element would make a difference to the way in which the invention works, and the "invention" is not the same as "the solution", the Applicant submits that the passage from MOPOP is nevertheless consistent with the finding that the computer hardware elements of the claims are essential elements of the claims. [Emphasis in original.]

[13] The Applicant agreed that purposive construction cannot be determined solely on the basis of a literal reading of the claims, but contended that this is precisely the issue addressed by the test for essentiality outlined in *Free World Trust*.

[14] The test for essentiality cannot be as the Applicant interprets, though, for it must be more than simply considering the extent to which recited elements can be varied without changing the way the claimed embodiment works.

[15] In *Canada (A.G.) v. Amazon.com*, 2011 FCA 328, the Federal Court of Appeal mandated the assessment of patentable subject-matter on the basis of purposive construction to "ensure that the Commissioner is alive to the possibility that a patent claim may be expressed in language that is deliberately or inadvertently deceptive." The Court gave the situation in *Schlumberger Canada Ltd. v. Canada (Commissioner of Patents)*, [1982] 1 F.C. 845 (C.A) as an example. Although the Court did not name the essential elements of that invention or explain how they were identified, it nonetheless indicated that, on a proper construction, the claimed invention was "for a mathematical formula and therefore not patentable subject matter" despite its appearance as "an 'art' or 'process'" and the fact that its "use of the computer was a practical application".

[16] As explained in *MOPOP* at §13.05.02*c*, not every element having a material effect on the operation of a given practical embodiment is essential to the solution; some recited elements define the context or environment of the embodiment but do not actually change the nature of the solution. Accordingly, purposive construction must consider which elements are required for the solution—proposed by the description and underlying the claimed embodiment—to achieve its result. The initial identification of the proposed problem and solution thus avoids the pitfall of a circular assessment beginning and ending with the language of the claims, which would be contrary to *Free World Trust*.

[17] The Applicant also pointed out in its RPR that finding computer trading systems to be "part of the common general knowledge <u>does not preclude the computer hardware components of such trading systems from being found to be essential elements of the claims</u>. (Emphasis in original)."

[18] We agree. As *MOPOP* (at §§13.05.02*b*–13.05.02*c*) explains, an element is not necessarily non-essential merely because it is part of the CGK. Nonetheless, the identification of the problem and solution—which guides the identification of the essential elements—is itself guided by the CGK, bearing in mind that the skilled person reads the specification with the expectation that it sets out something beyond commonly known solutions to commonly known problems.

Statutory subject-matter

[19] 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.

[20] "Examination Practice Respecting Computer-Implemented Inventions", PN2013–03 (CIPO, March 2013) [*PN2013–03*] clarifies the Patent Office's approach to determining if a computer-implemented invention is statutory subject-matter.

[21] As indicated in *PN2013–03*, where a computer is found to be an essential element of a construed claim, the claimed subject-matter will generally be statutory. Where, on the other hand, it is determined that the essential elements of a construed claim are limited to matter excluded from the definition of invention (e.g. the fine arts, mere ideas, schemes or rules, etc.), the claimed subject-matter will not comply with section 2 of the *Patent Act*.

ANALYSIS

Purposive construction

The skilled person

[22] In the PR letter, we identified the person skilled in the art "as a team comprising a trader of financial instruments with expertise in trading order types, and information technology experts with backgrounds in computerized financial data processing and electronic trading systems." Since the Applicant has not disputed this identification, we adopt it here.

The CGK

[23] Based on the identification of the CGK in the FA and on the application's description of the state of the art, we identified the following concepts as CGK in the PR letter:

- Trading order types, including passive or resting orders, GUB orders and limit orders;
- Trading schemes, including bettering trading orders; and

- Design, implementation, operation and maintenance of computer systems, networks and software, including:
    - Trading network systems;
    - General purpose and special purpose computers, computing devices, processors and user interfaces; and
    - Computer network and internet technologies and protocols.

[24] In its RPR, the Applicant stated that it did not agree that computerized trading systems form part of the CGK. Nonetheless, as stated in the PR letter, recognizing such systems as CGK is supported by the way they are referenced in the present application (paragraphs 2 to 8, 15 and 17), including the example given of US 6 560 580 as showing such existing systems. Accordingly, we also adopt the PR letter's identification of the CGK here.

The problem to be solved

[25] According to the description (paragraphs 4 to 8), GUB orders, having a relatively reduced duration, are intended to be an alternative to order types like limit orders, which exist until traded or cancelled. When there is a gap in the inside market, however, a first trader using a GUB order may be taken advantage of by a second trader that betters the GUB order to have it removed, then cancels its own order to submit a new order at the original price. A similar scenario can happen without a gap when the second trader makes and locks a contra offer matching the price of a current offer, again causing the first trader's GUB offer to be removed, then cancelling its own order and making a new one. Such behaviour is undesirable for the first trader and unnecessarily removes liquidity from the market.

[26] As explained above, processing GUB order types on computerized trading systems is CGK; the stated object of the invention is to maintain the viability of GUB orders in such a system (see both the title and paragraph 9 of the description).

[27] We identified the problem as such in the PR letter and although the Applicant disagreed with the emphasis placed on the problem and solution as a matter of purposive construction, it did not dispute the identification of the problem in its RPR. We adopt that identification again here.

The proposed solution

[28] The application (paragraphs 10, 11 and 15 to 21) proposes that the above object be accomplished, at least in part, by a new order type. That new order type is a

modification of a conventional GUB order type. The modification consists of the specification of an increment value and/or duration setting. The modified GUB order (when unfilled and not cancelled) is not removed unless a new order betters it by the specified increment value, or a new order bettering it is maintained for the specified duration. Some embodiments involve both specifications, where a GUB order is removed when either condition is satisfied, or where a GUB order is removed when both conditions are satisfied.

[29] A similar reasoning formed the basis for the identification of the solution in the PR letter. In the RPR, the Applicant did not explicitly dispute the identification, but did disagree with the emphasis placed on the problem and solution as a matter of purposive construction, as mentioned above. While discussing essential elements in its RPR, the Applicant also stated:

> "Devising the rules or order types themselves" would not solve any problems in the absence of the computers which implement a trading system on which such rules and order types would be possible.

[30] The Applicant had previously made related arguments in the RFA, contending that abusive bettering of GUB orders for trading advantage would not exist without computerized trading platforms, and electronic trading systems (and their attendant hardware) are thus necessary components of the problem and the solution. The Applicant had also characterized the problem and the solution as relating to a "computer problem", and as relating to the operation of the computerized trading system.

[31] As explained in the PR letter, the present application (paragraphs 3 to 8) acknowledges the existence of computerized trading systems permitting traders to submit various order types which are processed by the systems according to established rules. Such systems and functions are also part of the CGK. Furthermore, the application's (paragraphs 25 to 31; figure 1) description of the computerized trading system to be used in embodiments of the invention is neither particular nor extensively detailed, and does not refer to any challenges of achieving the computation and communication involved in implementing the new order type. The skilled person would thus not see the problem as lying in implementing certain rules or order types in a computerized trading system but rather in devising the rules or order types themselves to prevent certain undesirable trading behaviour.

[32] Accordingly, the solution is the improved GUB order type, and the abstract rules and steps that define it.

The essential elements

[33] For convenience, claim 1 is provided below as representative of the claims:

> 1. A method of trading items on an electronic trading system comprising a processor, the method comprising:
>
> receiving a good-until-bettered bid by the processor over a network, the good-until-bettered bid comprising a bid price;
>
> receiving by the processor instructions that specify a good-until-bettered increment value;
>
> specifying an amount of standard trading price increments for the bid;
>
> creating and maintaining, by the electronic trading system in non-transitory computer-readable storage media associated with the processor, an electronic record corresponding to the good-until-bettered bid in the electronic trading system until a bid that tops the good-until-bettered bid by the specified amount of standard trading price increments is received by the electronic trading system;
>
> determining by the processor that a bid that tops the good-until-bettered bid by the specified amount of standard trading price increments has been received by the electronic trading system and, determining, by the processor using a timer configured to indicate that the bid that tops the good-until-bettered bid has remained in the electronic trading system for a predetermined amount of time; and
>
> canceling by the processor the good-until-bettered bid based on the act of determining that the bid that tops the good-until-bettered bid by the specified amount of standard trading price increments (1) has been received by the electronic trading system and (2) has remained in the electronic trading system for a predetermined amount of time.

[34] Independent claims 1, 16, 27 and 33 are all directed to methods of trading items, independent claims 39, 40, 42, 57, 68 and 74 are directed to systems and apparatuses for trading items, and independent claims 80, 95, 106 and 112 are directed to software for trading items.

[35] We consider that the skilled person, based on the problem and solution according to the application, would understand claims 1 to 15, 42 to 56 and 80 to 94 to share the

same set of essential elements for directing the use of a GUB order. That set of essential elements is:

- Receiving a GUB bid comprising a bid price;
- Receiving instructions specifying a GUB increment value specifying an amount of standard trading price increments for the bid;
- Maintaining the GUB bid until receipt of a bid that tops it by the specified amount of standard trading price increments;
- Determining that a bid topping the GUB bid by the specified amount of standard trading price increments has been received and has remained for a predetermined amount of time; and
- Cancelling the GUB bid as a result of these determinations.

[36] Claims 16 to 41, 57 to 79 and 95 to 119 share similar sets of essential elements with some variations: some claims involve GUB offers and cutting offers instead of GUB bids and topping bids, some do not involve the specification of a GUB increment value or the associated determination, and some are not limited to specific types of GUB orders but encompass both GUB bids and GUB offers.

[37] In its RPR, the Applicant continued to contend that the computerized trading system should be considered among the essential elements:

> As applied to the claims of the present invention, the Applicant submits that there is no conceivable way in which the omission of the claimed processor, network, and various other computerized components could result in the claimed systems, methods and apparatus to perform substantially the same function in substantially the same way to obtain substantially the same result.

[38] As explained above, not every element having a material effect on the operation of a given embodiment is essential to the solution.

[39] Despite the present claims' references to computerized components, we believe, based on the problem and solution according to the application, that the person skilled in the art would understand these details to be outside the scope of the problem and solution. Such physical elements may be part of the context or working environment of the claimed invention, but are not essential elements of the claimed invention itself.

[40] Therefore, we consider the essential elements of the claims on file to be the abstract rules and steps defining the use of the new GUB order type.

Statutory subject-matter

[41] As construed above, the essential elements are the abstract rules and steps defining the use of the new GUB order type. Such matter is outside the categories of invention within section 2 of the *Patent Act*. Therefore, claims 1 to 119 do not define statutory subject-matter and thus do not comply with section 2 of the *Patent Act*.

Proposed claims

[42] As mentioned above, the Applicant submitted the second proposed claims with its RPR. The proposed amendments generally consist of adding the use of a timer to the independent claims (that did not already include such) to determine the length of time that a GUB order has been bettered, and emphasizing in the independent claims that electronic records for the GUB orders are stored and removed as appropriate. The Applicant contended that:

> the auxiliary claim set submitted herewith further emphasizes the role played by the computer hardware in implementing the electronic trading system, and that the bids received cause the creation of electronic records which are stored in computer-readable storage media associated with a processor. Such electronic records occupy physical space within the computer-readable storage media, and as such, may occupy computing resources which cannot be used for other purposes. By initializing the timer upon creating the electronic record for the bid that tops the GUB bid by the specified amount of trading price increments, the trading system can then determine when sufficient time has elapsed since the creation of that record, and then cancel the GUB bid and remove the electronic record corresponding to the GUB bid from the non-transitory computer-readable storage media associated with the processor. The removal of the GUB bid from the computer-readable storage media may improve computer performance by freeing up memory and processor resources. Thus, the computer resources required by the trading system do not become "bogged down" with storing stale electronic records corresponding to previous GUB bids which are no longer in effect.
>
> The Applicant respectfully submits that the auxiliary claim set submitted herewith further emphasizes the essential nature of the claimed computer hardware components in the implementation, performance and functioning of the claimed systems and methods. [Emphasis in original]

[43] The application as filed does not discuss the storage and removal of electronic records. Accordingly, adding text to the claims referring to such could only be

permitted by subsection 38.2(2) of the *Patent Act* if it were reasonably inferable from the specification and drawings as filed. That is to say, such steps must already be implicit in what is disclosed and claimed. Since they are already implicit in the claims on file, explicitly referring to them in the second proposed claims would not add to the elements already determined to be essential.

[44] Additionally, the problem and solution according to the description relate to the reduction of certain undesirable trading behaviour not the management of computer memory resources. The second proposed claims would not alter the above identifications of the person skilled in the art, CGK, and problem and solution; we construe the proposed claims as also having only the rules and steps defining the use of the new GUB order type for their essential elements. Accordingly, our view concerning non-statutory subject-matter also applies to the second proposed claims.

RECOMMENDATION OF THE BOARD

[45] In view of the above, the Panel recommends that the application be refused on the basis that claims 1 to 119 define non-statutory subject-matter and thus do not comply with section 2 of the *Patent Act*.

[46] We also do not consider the claims proposed on November 6, 2017 to constitute specific amendments necessary to comply with the *Patent Act* and *Patent Rules*. Accordingly, we do not recommend that the Applicant be notified under subsection 30(6.3) of the *Patent Rules* that they are necessary.

Leigh Matheson	Ed MacLaurin	Andrew Strong
Member	Member	Member

DECISION OF THE COMMISSIONER

[47] I concur with the findings of the Board and its recommendation to refuse the application. The claims on file do not comply with section 2 of the *Patent Act*.

[48] Accordingly, I refuse to grant a patent for this application. Under section 41 of the *Patent Act*, the Applicant has six months to appeal my decision to the Federal Court of Canada.

Johanne Bélisle
Commissioner of Patents
Dated at Gatineau, Quebec,
this 7th day of May , 2018