

Citation: Chicago Mercantile Exchange, Inc. (Re), 2021 CACP 14

Commissioner's Decision #1567

Décision du Commissaire #1567

Date: 2021-03-25

TOPIC: J-00 Meaning of Art

J-50 Mere Plan

SUJET: J-00 Signification de la technique

J-50 Simple Plan

Application No. : 2,661,337

Demande n° 2 661 337

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2,661,337, 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 allow the application.

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INTRODUCTION

- [1] This recommendation concerns the review of rejected Canadian patent application number 2,661,337 which is entitled “TEMPLATE BASED MATCHING” and is owned by CHICAGO MERCANTILE EXCHANGE, INC. (“the Applicant”).
- [2] 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, my recommendation to the Commissioner of Patents is to allow the application.

BACKGROUND

The application

- [3] Canadian patent application 2,661,337, based on a previously filed Patent Cooperation Treaty application, is considered to have a filing date of September 20, 2007, and was laid open to public inspection on March 22, 2008.
- [4] The application relates to trading of financial instruments. More specifically, it relates to a method of improving market liquidity by matching trading orders using trade templates.

Prosecution history

- [5] On November 25, 2016, a Final Action (“FA”) was issued pursuant to subsection 30(4) of the *Patent Rules* (SOR/96-423) as they read immediately before October 30, 2019, in which the application was rejected on the basis of non-statutory subject-matter. The FA stated that claims 1 to 17, dated November 20, 2015 (“claims on file”), did not comply with section 2 of the *Patent Act*.
- [6] On May 24, 2018, a response to the FA (“R-FA”) was filed by the Applicant. In the R-FA, the Applicant submitted a proposed set of claims 1 to 9 (“proposed claims”) and proposed amendments to pages 2a and 2b of the description for consideration. The Applicant also argued that the claims were directed to patentable subject-matter and complied with section 2 of the *Patent Act*.
- [7] Since the Examiner maintained the position that the application did not comply with section 2 of the *Patent Act* after considering the R-FA, the application was forwarded to the Board on July 16, 2018, along with a Summary of Reasons (“SOR”). In the SOR, the

Examiner stated that the claims on file were still considered to be directed to non-statutory subject-matter and did not comply with section 2 of the *Patent Act*. The Examiner further considered that the proposed claims did not overcome the non-statutory subject-matter defect.

- [8] The SOR was forwarded to the Applicant on July 30, 2018. In a letter dated October 30, 2018, the Applicant indicated their continued interest in the application being reviewed by the Board.
- [9] The undersigned has been assigned to review the rejected application on behalf of the Commissioner of Patents under paragraph 199(3)(c) of the *Patent Rules* (SOR/2019-251).
- [10] In a preliminary review letter dated June 10, 2020 (“PR letter”), I presented my preliminary analysis and rationale as to why the subject-matter of the claims on file did not comply with section 2 of the *Patent Act*, based on the jurisprudence and Office practice at the time. The PR letter also offered the Applicant the opportunities to make written submissions and to attend an oral hearing.
- [11] In correspondence dated June 24, 2020 and July 10, 2020, the Applicant indicated that they did not wish to participate in the oral hearing and would not make further written submissions.
- [12] Following the decision of the Federal Court of Canada in *Choueifaty v Canada (AG)* 2020 FC 837 [*Choueifaty*], the Patent Office issued “Patentable subject-matter under the *Patent Act*,” (CIPO, November 2020) [*PN2020-04*]. In view of the latest guidance from *Choueifaty* and *PN2020-04*, the subject-matter issue of the present application has been re-considered.

ISSUE

- [13] There is only one issue to be considered in this review with respect to the claims on file:
- Whether the claims on file define patentable subject-matter, as required by section 2 of the *Patent Act*.

LEGAL PRINCIPLES AND PATENT OFFICE PRACTICE

Purposive construction

- [14] *Choueifaty* (at paras 31 to 40) emphasizes the importance of following the principles of purposive construction, when determining whether claimed elements are essential or non-essential, as set out in *Free World Trust v Électro Santé Inc*, 2000 SCC 66 [*Free World Trust*] and *Whirlpool Corp v Camco Inc*, 2000 SCC 67 [*Whirlpool*].
- [15] In accordance with *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* at paras 49(f) and (g), and 52). 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 (*Free World Trust* at paras 55, 57, and 59).
- [16] *PN2020-04* also elaborates the application of these principles:
- The purposive construction of a claim is carried out in light of the whole of the specification and takes into account what the person skilled in the art would understand from the whole of the specification to be the nature of the invention.
- During purposive construction of a claim, the elements of the claimed invention “are identified as either essential elements (where substitution of another element or omission takes the device outside the monopoly) or non-essential elements (where substitution or omission is not necessarily fatal to an allegation of infringement).” In carrying out this identification of essential and non-essential elements, all elements set out in a claim are presumed essential, unless it is established otherwise or is contrary to the language used in the claim.
- [17] Since the purposive construction of a claim takes into account what the skilled person would understand to be the nature of the invention, it is necessary to identify the skilled person and their relevant common general knowledge (CGK).

Patentable subject-matter

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

“[I]nvention” 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.

[19] *PN2020-04* explains the Patent Office's approach to determining if a computer-related invention 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.

...

The mere fact that a computer is identified to be an essential element of a claimed invention for the purpose of determining the fences of the monopoly under purposive construction does not necessarily mean that the subject-matter defined by the claim is patentable subject-matter and outside of the prohibition under subsection 27(8) of the *Patent Act*.

...

If a computer is merely used in a well-known manner, the use of the computer will not be sufficient to render the disembodied idea, scientific principle or abstract theorem patentable subject-matter and outside the prohibition under subsection 27(8) of the *Patent Act*.

In the case of a claim to a computer programmed to run a mathematical algorithm, if the computer merely processes the algorithm in a well-known manner and the processing of the algorithm on the computer does not solve any problem in the functioning of the computer, 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. If the algorithm by itself is considered to be the actual invention, the subject-matter defined by the claim is not patentable subject-matter or is prohibited under subsection 27(8) of the *Patent Act*.

On the other hand, if running the algorithm on the computer improves the functioning 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 subject-matter and not be prohibited under subsection 27(8) of the *Patent Act*.

ANALYSIS

Purposive construction

[20] There are 17 claims on file, including independent claims 1, 9, and 15, and dependent claims 2 to 8, 10 to 14, and 16 to 17. In my view, claim 1 is representative of the claims on file:

1. A method of improving market liquidity of an exchange by matching orders for financial instruments in a computer system of the exchange, the method comprising:

- (a) generating at a microprocessor a collection of acceptable trade templates that are each based on more than one order;
 - (b) generating at a microprocessor a collection of needed orders that each when combined with one or more existing orders meet the requirements of an acceptable trade template and allow the matching of all of the orders that form the acceptable trade template;
 - (c) receiving a new order from a user over a network;
 - (d) comparing at a microprocessor the new order to the needed orders in the collection of needed orders;
 - (e) when the new order matches one of the needed orders executing at a microprocessor a trade between the new order and an order corresponding to the needed order, and
- wherein at least one of the acceptable trade templates includes at least two spread products.

[21] Independent claims 9 and 15 recite a system and a computer readable medium, respectively, wherein method steps similar to that of claim 1 are performed by computer elements.

[22] Dependent claims 2 to 8, 10 to 14 and 16 to 17, which are directly or indirectly dependent upon claims 1, 9, or 15, recite further limitations.

The person skilled in the art

[23] In the PR letter, the person skilled in the art was identified as stated in the FA (page 2):

[T]he notional person of skill in the art, or team of persons skilled in the art, include traders of financial instruments in cooperation with Information Technology personnel skilled in computerized systems for trading of financial instruments.

[24] The Applicant has not disputed this characterization and it is adopted for this review.

The common general knowledge

[25] In the PR letter, the CGK of the skilled person was identified as stated in the FA (page 2):

The team of persons skilled in the art have skills and experience in:

- trading in defined combinations of financial instruments, including butterfly and calendar spread products (present application, paragraph [3]);
- matching orders for spread products with multiple orders for legs of the spread products (present application, paragraph [3]);
- limited ability to match combinations of orders segregated in numerous order books and its effect on market liquidity (present application, paragraph [4]); and

- computer components, devices, networks, and computer applications, including their design, implementation, operation and maintenance, including, but not limited to:
 - computerized system for trading financial instruments;
 - general purpose computers, special purpose computers, computing devices, processors, input and output devices, network interfaces, and user interfaces;
 - computer software and associated programming languages and memory devices and storage mediums;
 - distributed computing systems, including internetwork protocols and information/data transfers between devices and modules; and
 - computer databases and database management protocols.

[26] The Applicant has not disputed this identification and it is adopted for this review.

Meaning of terms

[27] In the PR letter, the estimations of the skilled person’s understanding of the terms “trade template,” “collection of acceptable trade templates,” and “collection of needed orders” were provided:

After considering the specification as a whole, I provide my preliminary estimations of the skilled person’s understanding of these terms for this review:

...

- Trade templates: a group of trading orders for financial instruments. The orders may include a plurality of orders for spread products and outright products. In a trade template, all legs of spread orders and outright orders are either matched to legs of other spread orders or outright orders, or marked as unmatched;
- Collection of acceptable trade templates: a data collection of trading templates, each of which include at least one unmatched leg of a spread order or an unmatched outright order; and
- Collection of needed orders: a data collection of trading orders that each when combined with one or more existing trading orders meet the requirements of an acceptable trade template to complete one or more orders in the trade template.

[28] The Applicant has not disputed the estimations above.

[29] In addition, I also consider the meaning of the term “market liquidity” significant for this analysis. The concept of liquidity of financial instruments was introduced as early as the 1930s (Keynes, John Maynard, A Treatise on Money, 1930, “bills and call loans are more ‘liquid’ than investments, i.e., more certainly realizable at short notice without loss”). With respect to the term “market liquidity,” there is an established meaning in the art. For

example, the International Monetary Fund (IMF) published a document discussing liquidity in various financial markets:

Abdourahmane et al., “Measuring Liquidity in Financial Markets,” IMF Working Paper, WP/02/232, December 2002.

[30] For this review, the following definition is derived from the abovementioned document:

- Market liquidity: Market liquidity refers to the extent to which large amounts of financial assets can be sold quickly without adversely affecting its price. Liquid markets tend to exhibit five characteristics: (i) tightness; (ii) immediacy; (iii) depth; (iv) breadth; and (v) resiliency.

The essential elements

[31] There is no claim language indicating any of the elements to be optional, preferred embodiments, or one of a list of alternatives. Therefore, all the claimed elements are presumed to be essential.

Patentable subject-matter

[32] Having considered that the claimed computer elements are essential, it is necessary to determine whether the computer elements and other elements of the claimed invention form a single actual invention and improve the functioning of the computerized trading system.

[33] For the claimed invention, the computer in an electronic trading system of an exchange utilizes trade templates to pre-match parts of existing spread orders, determines needed orders to complete the trade templates, matches incoming orders with needed orders, and executes matched trades. Since the legs of existing spread orders are not compared and matched separately with each incoming trading order, and some of the legs in existing spread orders are pre-matched before comparing with incoming orders individually, market liquidity is improved on both efficiency and speed. Therefore, it is my view that the claimed method comprising an order matching algorithm improves the order matching functionality of the computerized trading system. Consequently, in my view, the computerized trading system and the order matching algorithm form a single actual invention that addresses the known market liquidity limitations of existing trading platforms due to inefficient order matching algorithms, as noted in the CGK section. Therefore, the claimed subject-matter is physical, solves a problem related to the manual or

productive arts, and is not prohibited under subsection 27(8) of the *Patent Act*.

[34] Furthermore, as indicated in the specification of the present application, the utilization of trade templates for order matching in the trading system is directed to achieving increased market liquidity, i.e., the ability of the trading system to absorb large amount of incoming orders more quickly and more efficiently. In the R-FA, the Applicant also argued that “the use of templates and the collection of needed orders allows for a more efficient and rapid matching of orders for combinations of instruments.”

[35] For completeness, the present case is also considered in view of *Schlumberger Canada Ltd v Commissioner of Patents*, [1982] 1 FC 845 (CA) [*Schlumberger*], which concerns computer-implemented algorithms. In *Schlumberger*, the Federal Court of Appeal explained that a mental process of making certain calculations according to certain mathematical formulae is not patentable subject-matter, and that merely prescribing the calculations be made by a computer cannot transform it into patentable subject-matter. However, the actual invention of the claims on file can be considered to distinguish from those of *Schlumberger*, in that the computerized steps here are not merely for yielding information, but for permitting the computer inside the electronic trading system to carry out the order matching procedures with higher efficiency and faster speed, which improves the functioning of the computerized trading system for achieving better market liquidity. Therefore, in my view, claims 1 to 17 on file define patentable subject-matter and thus comply with section 2 of the *Patent Act*.

[36] The proposed claims and the proposed amendments to the description have not been further considered as the application in its present form is considered to be allowable.

Conclusions

[37] I am of the view that claims 1 to 17 on file define patentable subject-matter and thus comply with section 2 of *Patent Act*.

RECOMMENDATION OF THE BOARD

[38] In view of the above, I am of the view that the rejection is not justified on the basis of the defect indicated in the Final Action notice and I have reasonable grounds to believe that the instant application complies with the *Patent Act* and the *Patent Rules*. I recommend that the Applicant be notified in accordance with subsection 86(10) of the *Patent Rules* that the rejection of the instant application is withdrawn and that the instant application has been found allowable.

Liang Ji

Member

DECISION OF THE COMMISSIONER

[39] I concur with the findings of the Board and its recommendation that the application should be allowed because the claims on file define patentable subject-matter and thus comply with section 2 of the *Patent Act*.

[40] Therefore, in accordance with subsection 86(10) of the *Patent Rules*, I hereby notify the Applicant that the rejection of the application is withdrawn, the application has been found allowable and I will direct my officials to issue a Notice of Allowance in due course.

Virginie Ethier

Assistant Commissioner of Patents,

Dated at Gatineau, Quebec,

This 25th day of March, 2021