Citation: BlackRock Fund Advisors (Re), 2020 CACP 6
Commissioner's Decision #1526
Décision du Commissaire #1526
Date: 2020-04-30

TOPIC:	J00	Meaning of Art
	J40	Mental Steps
SUJET:	J00	Signification de la technique
	J40	Processus psychologique

Application No. : 2,848,479
Demande n^{o} 2 848 479

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2,848,479, having been rejected under subsection 30(3) of the *Patent Rules* (SOR/96-423) as they read immediately before October 30, 2019 ("*former Rules*") has consequently been reviewed in accordance with paragraph 199(3)(c) of the *Patent Rules* (SOR/2019-251) ("*Patent Rules*"). The recommendation of the 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 2,848,479 ("the instant application"), which is entitled "CUSTOMIZING BASKETS FOR EXCHANGE-TRADED FUNDS" and is owned by BLACKROCK FUND ADVISORS ("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*. As explained in more detail below, our recommendation is that the Commissioner of Patents refuse the application.

BACKGROUND

The Application

[2] The instant application was filed in Canada on April 4, 2014. It was laid open to public inspection on June 27, 2015.

[3] The instant application relates to exchange-traded funds, which are investment funds typically designed to track a market index, such as a bond index. Generally, a pre-defined "basket" of securities that are defined by a fund manager may be exchanged for shares in such funds. Although such funds may track a market index, the basket of securities generally do not include all securities that make up the market index. The instant application proposes a method wherein a group of securities received from a prospective investor, which may include securities that are part of the market index but not part of the predefined basket of the fund manager, may be used to create a custom basket for that investor based on as assessment of value and risk to the fund overall.

Prosecution History

[4] On June 5, 2017, a Final Action ("FA") was written pursuant to subsection 30(4) of the *former Rules*. The FA stated that the instant application is defective on the ground that all of the claims 1-31 on file at the time of the FA ("claims on file") encompass non-statutory subject-matter and therefore do not comply with section 2 of the *Patent Act*.

[5] In a December 5, 2017 response to the FA ("R-FA"), the Applicant submitted proposed claims 1-31 ("proposed claims"), which included modifications to the independent claims on file. The Applicant also proposed amendments to the description to reflect the new proposed claim language. Arguments in favor of the patentability of the claims on file as

well the proposed claims were submitted.

[6] As the Examiner considered the application not to comply with the *Patent Act*, pursuant to paragraph 30(6)(c) of the *former Rules*, the application was forwarded to the Board for review on February 12, 2018 along with an explanation outlined in a Summary of Reasons ("SOR"). The SOR set out the position that the claims on file were still considered to be defective due to non-statutory subject-matter. The SOR also indicated that the proposed claims did not overcome the non-statutory subject-matter defect.

[7] In a letter dated February 15, 2018, the Board forwarded to the Applicant a copy of the SOR and requested that the Applicant confirm its continued interest in having the application reviewed.

[8] No response was received from the Applicant to the Board letter and SOR.

[9] The present panel ("the Panel") was formed to review the instant application under paragraph 199(3)(c) of the *Patent Rules*.

[10] In a preliminary review letter ("PR letter") dated January 13, 2020, the Panel set out its preliminary analysis of the statutory subject-matter issue with respect to the claims on file and the proposed claims. The Panel also provided the Applicant with an opportunity to make oral and/or written submissions.

[11] In a response dated January 30, 2020, the Applicant indicated that it did not intend to participate in an oral hearing, but that written submissions might be submitted by the due date set out in the PR letter.

[12] The Applicant confirmed via email on February 24, 2020 that no written submissions were made.

ISSUE

[13] The issue to be addressed by the present review is whether claims 1-31 on file are directed to non-statutory subject-matter.

[14] If the claims on file are considered to be defective, we may turn to the proposed claims and consider whether they constitute amendments necessary for compliance with the *Patent Act* and *Patent Rules*, pursuant to subsection 86(11) of the *Patent Rules*.

LEGAL PRINCIPLES AND OFFICE PRACTICE

Claim Construction

[15] In accordance with *Free World Trust v Électro Santé Inc*, 2000 SCC 66 [*FreeWorldTrust*], 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 Corp v Camco Inc*, 2000 SCC 67 at paras 49(f) and (g) and 52 [*Whirlpool*]). In accordance with the *Manual of Patent Office Practice*, §12.02 (revised June 2015), the first step of purposive claim construction is to identify the person skilled in the art and their 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.

Statutory Subject-Matter

[16] 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.

[17] The Office examination memo PN 2013-03 entitled "*Examination Practice Respecting Computer-Implemented Inventions*" ("*PN 2013-03*") clarifies examination practice with respect to the Office's approach to computer-implemented inventions.

[18] As stated in PN 2013-03, Office practice considers that 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 (for example, fine arts, methods of medical treatment, features lacking in physicality, or claims where the subject-matter is a mere idea, scheme, rule or set of rules), the claim will not be compliant with section 2 of the *Patent Act.*

ANALYSIS

Claim Construction

Submissions with respect to Office Practice

[19] In the PR letter at pages 3-4, we addressed the Applicant's submissions in the R-FA with respect to the validity of the Patent Office approach to purposive construction:

> In the R-FA at pages 7-14, the Applicant presented arguments that the Office approach to purposive construction was not supported by Canadian jurisprudence, pointing to the Supreme Court of Canada's decisions in *FreeWorldTrust* and *Whirlpool*, highlighting the importance of the material effect criteria and the inventor's intent in determining the essentiality of elements of a claim. The Applicant also pointed to the Federal Court of Appeal decision in *Canada (Attorney General) v Amazon.com Inc*, 2011 FCA 328 [*Amazon.com*], to support the contention that the principles expressed in *FreeWorldTrust* and *Whirlpool* must be applied in the present case.
>
> The approach to purposive construction during examination set out in MOPOP §12.02 represents the Patent Office's interpretation of the jurisprudence set out above by the Applicant. The application of the jurisprudence is discussed therein as follows:
>
> > In *Canada (Attorney General) v Amazon.com Inc*, the Federal Court of Appeal observed that, during examination, Supreme Court jurisprudence "requires the Commissioner's identification of the actual invention to be grounded in a purposive construction of the patent claims".
> >
> > The application of the principles of purposive construction to the examination of a patent application must take into account the role of the patent examiner and the purpose and context of examination.
> >
> > In *Free World Trust* and *Whirlpool*, the Supreme Court outlined that purposive construction is performed by the court to objectively determine what the person skilled in the art would, as of the date of publication of the patent application and on the basis of the particular words or phrases used in the claim, have understood the applicant to have intended to be the scope of protection sought for the disclosed invention.
>
> *MOPOP §12.02.01* then sets out the steps to be followed in purposively construing a claim:
>
> > When examining a claim, an examiner must read the claim in an informed and purposive way. Prior to construing a claim an examiner will:
> >
> > > 1. Identify the person of ordinary skill in the art [see 12.02.02b]; and
> > >
> > > 2. Identify the relevant common general knowledge of the person of ordinary skill in the art at the time of publication [see 12.02.02c].

> The above steps provide the context in which the claim is to be read. Once the context is determined the examiner will:
>
> > 3. Identify the problem addressed by the application and its solution as contemplated by the inventor [see 12.02.02d]; and
> >
> > 4. Determine the meaning of the terms used in the claim and identify the elements of the claim that are essential to solve the identified problem [see 12.02.02e].
>
> We further note that at page 6 of the R-FA, the Applicant contends that the FA applied a "contribution approach" that was rejected by the Federal Court of Appeal in Amazon.com. However, in our view the FA has set out the purposive construction analysis in accordance with the approach set out in *MOPOP §12.02.01*.
>
> The claim construction analysis below has also been performed in accordance with the steps set out in *MOPOP §12.02.01* and we consider the Applicant's submissions in respect of each step of the analysis.

[20] As noted above, no submissions were made in response to the PR letter.

The person skilled in the art

[21] In the PR letter at page 4, after reviewing the Applicant's submissions in the R-FA, we preliminarily agreed with the characterization of the person skilled in the art set out in the FA:

> In the FA at page 2, the person skilled in the art was characterized as:
>
> > the skilled person, who may be a team of people, is skilled in the field of financial system[s] that carries out fund management and trading procedure of trading securities including stocks, and bonds and exchanged-traded fund (ETF). The skilled person is also proficient in the information technologies related to a fund management system including computer software, hardware and network architecture to establish a communication connection between the client devices and the exchange servers for carrying out the trading procedure.
>
> In the R-FA at page 5, the Applicant clarified that they make no admission that they agree with the purposive construction set out in the FA. However, the Applicant did not offer any specific arguments in dispute of the identification of the person skilled in the art.
>
> Given the field of the invention set out at paragraph [0001] of the instant application, which relates to "creation of an exchange-traded fund (ETF), and particularly to customizing baskets used for creating shares of an exchange-traded fund", as well as the background

> information set out at paragraphs [0002]-[0004], it is our preliminary view that the identification of the person skilled in the art set out in the FA is appropriate.

[22] There having been no submissions in response to the PR letter, we apply the above in our analysis below.

The relevant common general knowledge

[23] In the PR letter at pages 4-5, we preliminarily agreed with the relevant CGK of the person skilled in the art as set out in the FA at pages 2-3:

> The skilled person has the knowledge about the creation of shares of an exchange traded fund (ETF) and fund management of the ETF. In the ETF creation process, the fund manager of an ETF publishes a portfolio composition file (PCF) each business day defining a creation basket of securities that may be exchanged by an authorized participant in exchange for newly-created shares of the ETF on such business day. The exchange is a secondary market for the fund, as ordinary investors cannot directly create or redeem shares with the fund through the exchange (paragraph 0002).
>
> According to the disclosure of the fund management system in the present description (paragraphs 0017 and 0045-0048; Fig. 2), the applicant has acknowledged that the computer devices used in the embodiment of the present invention are general purpose computer devices that are connected to the system through the well-known communication network/internet. As such, the computer devices and network connection used in the implementation of the claimed subject matter are part of the common general knowledge of the person skilled in the art.

[24] We also set out the following additional points that we took to have been part of the relevant CGK, in light of the discussion in the Background section of the instant application:

- ETFs are generally designed to track the performance of a specific market index, such as a bond index;
- The benchmark for ETFs is the specified market index;
- ETF fund managers typically do not include all the securities that are part of a market index when designating creation baskets (the PCFs published daily) that may exchanged for shares in the fund; and
- The above creates a problem in that if an investor has securities that match the benchmark for a fund, but are not in the ETF creation basket designated by the published PCF, the investor cannot exchange them for fund shares.

[25] As there were no submissions in response to the PR letter, we proceed based on the above-identified CGK.

The problem to be solved

[26] In the PR letter at page 5, after reviewing the Applicant's submissions in the R-FA, we preliminarily agreed with the problem as set out in the FA:

> In our preliminary view, the problem identified in the FA seems to be consistent with the views of the Applicant where shares could not be created for certain securities. We agree with the position in the FA that there is no computer problem that is addressed by the alleged invention. The instant application specifies that a computer implementation of the method would use a general purpose computing device programmed to perform the claimed method steps (paragraph [0047] of instant application). Considering the factors set out in *PN2013-03*, we see no specific problem with the operation of a computer or any problem involving a technical architecture element. Likewise there is no emphasis in the description on challenges or deficiencies of prior computers. Further, in the instant application, a significant level of detail is devoted to the evaluation of the securities from potential investors, including the mathematical relationships used to generate a custom creation basket, rather than a computer algorithm or logic.

[27] The problem was set out in the FA as:

> the creation baskets used by fund managers of ETF[s] do not include all securities in the index therefore if there are securities that match the benchmark for a fund but are not included in the creation basket, the investor cannot contribute [sic] those securities to create the fund (paragraph [0004]).

[28] Again, as there were no submissions in response to the PR letter, we apply the above problem in our analysis.

The solution

[29] In the PR letter at page 6, after reviewing the Applicant's submissions in the R-FA, we preliminarily agreed with the solution as set out in the FA:

> In our preliminary view, the solution identified in the FA is consistent with the Applicant's contention that the solution involves interactions with investors. The solution particularly specifies the creation of custom baskets for investors, which implies some type of interaction with them. Further, we agree with the position in the FA at page 4 that the computing components do not form part of the solution. As discussed above in relation to the problem to be solved, there is no computer problem that would necessitate the inclusion of the computing components as part of the solution.

[30] The solution was set out in the FA as:

> [t]he application provides a method of generating custom creation baskets for creating shares of an exchange-traded fund (ETF) that are specifically for one or more investors of a particular ETF (paragraphs 0001-0011; Fig. 3).

[31] There having been no response to the PR letter, we proceed on the basis of the above solution.

The essential elements of the claims

[32] In the PR letter at pages 6-7, we preliminarily agreed with the identification of the essential elements of independent claims 1, 17 and 18, as set out in the FA:

> • receiving, from an investor, an available inventory of securities designating securities and quantities of the securities available for use in creation of shares of the ETF;
>
> • selecting a set of eligible securities from the available inventory based on whether the available securities matches securities in a benchmark or strategy associated with the ETF;
>
> • generating a set of custom creation baskets comprising quantities of the securities from the set of eligible securities;
>
> • calculating a utility of each candidate basket in the set of candidate baskets using a utility function, the utility function calculating the utility of the candidate basket relative to current assets of the ETF and a benchmark of the ETF, the utility function positively measuring value to the ETF and negatively measuring risk to the ETF;
>
> • selecting a custom creation basket from the set of candidate baskets based on the calculated utilities for the candidate baskets;
>
> • transmitting the custom creation basket to the investor; and
>
> • responsive to receiving the quantities of securities in the customized basket from the authorized participant, creating shares of the ETF and sending the shares of the ETF to the investor.

[33] As we noted in the PR letter, while the Applicant disagreed with the approach used to determine the essential elements, the argumentation in the R-FA focussed on the nature of several of the steps set out above and their effect on the statutory subject-matter issue.

[34] There having been no response to the PR letter, we adopt the list of essential elements above. We will briefly address the subject-matter of dependent claims below, as was the case in the PR letter.

<u>Statutory Subject-Matter</u>

[35] In the PR letter at pages 7-8 we set out our preliminary analysis of the statutory subject-matter issue, addressing the Applicant's submissions in the R-FA with respect to several of the essential elements listed above:

> In the FA at page 6, it was indicated that the essential elements of the claims on file were directed to subject-matter that is not within the scope of section 2 of the *Patent Act*. The FA at page 5 states that the essential elements "refer to calculations and a financial scheme using the calculations."
>
> Considering the list of essential elements of the independent claims set out above, in our preliminary view the steps represent the reception and processing of certain information according to certain rules and defined calculations, with the output being information in the form of a custom creation basket. This basket is essentially a list of securities that may be provided to an investor and exchanged for shares of an investment fund. In our preliminary view, such steps represent abstract information and its processing by means of a set of rules and calculations that are akin to mental steps.
>
> In the R-FA, the Applicant contended that even if the computer components were not essential, which they do not admit, at least the following steps, identified as essential to the independent claims in the FA and above, involve physical existence and manifest a discernable effect or change:
>
> 1. receiving from an investor, an available inventory of securities;
> 2. transmitting a custom creation basket to the investor; and
> 3. responsive to receiving quantities of securities, creating shares and sending the shares to the investor.
>
> In the Applicant's view, the reception, transmission and creation steps would be perceptible to an investor and would therefore represent something with physical existence. These actions, in the Applicant's view would cause a discernable effect or change, as required for patentability in *Amazon.com* at paragraph 66.
>
> In our preliminary view, steps such as those highlighted by the Applicant above represent part of the practical embodiment of the rules and calculations, themselves abstract and akin to mental steps, that are used in the method that requires input information in order to provide an output. As the Court in *Amazon.com* explained, the claims in *Schlumberger*[1], which were directed to a method of collecting, recording and analyzing seismic data, were not saved by the fact that they set out a practical application (*Amazon.com* at paragraph 69). It is particularly noteworthy that although such claims included the collection and recording of data in order to provide the practical application, they were nonetheless determined to be directed to non-statutory subject-matter. Likewise, in our preliminary view, the steps of receiving, transmitting and creating information in the claims on file do not transform the claims such that they define something with physical existence or something that manifests a discernable effect or change.

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[1] *Schlumberger Canada Ltd v Commissioner of Patents* (1981), 56 CPR (2d) 204 (FCA)

> In light of the above, it is our preliminary view that independent claims 1, 17 and 18 are directed to non-statutory subject-matter and are therefore non-compliant with section 2 of the *Patent Act*.
>
> With respect to dependent claims 2-16 and 19-31, in our preliminary view, the additional steps of these claims represent further refinements of the rules and calculation used in the method and likewise are directed to non-statutory subject-matter and are therefore non-compliant with section 2 of the *Patent Act*.

[36] There having been no response to the PR letter, we conclude that claims 1-31 on file are directed to non-statutory subject-matter and therefore do not comply with section 2 of the *Patent Act*, for the reasons set out in the PR letter and reproduced above.

PROPOSED CLAIMS

[37] In the PR letter at page 8, we set out our preliminary view that proposed claims 1-31 submitted with the R-FA would not alter the outcome of the assessment of statutory subject-matter:

> With the R-FA the Applicant submitted proposed claims 1-31, amending independent claims 1, 17 and 18 to specify that what is claimed is a fund management system for interacting with investors. Proposed amendments to the description were also submitted to reflect the same type of language.
>
> As stated at page 5 of the R-FA, the Applicant considers the interactions with investors, namely the creation of shares, notifications to an investor, transfer of securities from an investor and transfer of shares to the investor, to be actions implying physical existence and manifesting a discernable effect or change.
>
> With respect to the specification of a fund management system in the proposed claims, as explained above, the problem does not relate to a computer problem. Nor does the solution involve a computer system. Therefore, the specification of a fund management system in the proposed claims would not change the essential elements as identified above and would not change our preliminary view of the non-statutory nature of the claims on file.
>
> With respect to the interactions with an investor, as explained above under the assessment of statutory subject-matter, these interactions do not transform the claims such that they define something with physical existence or that manifests a discernable effect or change.
>
> As such, it is our preliminary view that the proposed amendments to the claims in the R-FA do not render the claims statutory and are therefore not "necessary" for compliance with the *Patent Act* and *Patent Rules* as required by subsection 86(11) of the *Patent Rules*.

[38] With no submissions having been made in response to the PR letter, and in light of the above, we conclude that the subject-matter of proposed claims 1-31 is directed to non-statutory subject-matter and is therefore non-compliant with section 2 of the *Patent Act*. As

such, the proposed claim set does not overcome the defect under statutory subject-matter for the claims on file and is therefore not "necessary" for compliance with the *Patent Act* and *Patent Rules* as required by subsection 86(11) of the *Patent Rules*.

CONCLUSION

[39] We have determined that claims 1-31 on file are directed to non-statutory subject-matter and are therefore non-compliant with section 2 of the *Patent Act*.

RECOMMENDATION OF THE BOARD

[40] In view of the above, the Panel recommends that the application be refused on the ground that the claims on file are directed to non-statutory subject-matter and are therefore non-compliant with section 2 of the *Patent Act*.

Stephen MacNeil	Andrew Strong	Kurtis Ulicny
Member	Member	Member

DECISION OF THE COMMISSIONER

[41] I concur with the conclusion and recommendation of the Board that the application be refused on the ground that the claims on file are directed to non-statutory subject-matter and are therefore non-compliant with section 2 of the Patent Act.

[42] 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.

Johanne Bélisle
Commissioner of Patents

Dated at Gatineau, Quebec
This 30th day of April, 2020