

Commissioner's Decision #1428

Décision du commissaire n° 1428

TOPICS: O00 Obviousness
D00 Division
B00 Indefiniteness

SUJETS: O00 Évidence
D00 Division
B00 Caractère indéfini

Application No: 2,836,304

Demande n°: 2 836 304

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2,836,304, having been rejected under subsection 30(3) of the *Patent Rules* (SOR/96-423), has consequently been reviewed in accordance with paragraph 30(6)(c) of the *Patent Rules*. The recommendation of the Board and the decision of the Commissioner is to notify the Applicant that specific amendments must be made to the application for compliance with the *Patent Act* and *Patent Rules*.

Agent for the Applicant

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INTRODUCTION

- [1] This recommendation concerns the review of rejected patent application number 2,836,304, which is entitled “METHOD AND SYSTEM OF RECOVERING ENERGY FROM A FLOW OF OIL SANDS SLURRY” and is owned by Suncor Energy Inc. (“the Applicant”). The outstanding defects to be addressed are whether claims 1-7, 9-15 and 17-35 on file at the time of the Final Action would have been obvious, whether the claims proposed in the response to the Final Action overcome the obviousness defect and whether such proposed claims introduce a new defect relating to a lack of unity of invention.
- [2] A review of the rejected application has been conducted by the Patent Appeal Board (“the Board”) pursuant to paragraph 30(6)(c) of the *Patent Rules*. As explained in more detail below, our recommendation is that the Commissioner of Patents requires that a revised set of proposed claims 1-37 submitted on May 10, 2017, with an additional minor correction thereto, be substituted for the claims on file and that the application be thereafter allowed.

BACKGROUND

The Application

- [3] Patent application 2,836,304 (“the instant application”) was filed in Canada on June 4, 2009 and was laid open to the public on December 4, 2009.
- [4] The instant application relates to a method and system for recovering energy from a flow of oil sand slurry by applying a negative head or resistance to the slurry flow, with the negative head provided by a device that allows the energy present in the slurry flow to be reused as heat or electricity. In the present case, the negative head is applied by means of a pump that is part of the slurry flow system, where a resistance may be applied to the

movement of the pump, which may be driven by, for example, a downhill slurry flow during periods of low slurry flow rates.

Prosecution History

- [5] On March 6, 2015, a Final Action (“FA”) was written pursuant to subsection 30(4) of the *Patent Rules*. The FA stated that the instant application was defective on the grounds that claims 1-7, 9-15 and 17-35 on file would have been obvious on the claim date (June 4, 2008). The FA indicated that claims 8, 16, and 36 on file appeared to contain allowable subject matter.
- [6] In a June 2, 2015 response to the FA (“R-FA”), the Applicant submitted proposed claims 1-70, which claims were in line with the subject matter of claims 8, 16 and 36 on file. The Applicant also proposed amendments to the description corresponding to the proposed claims of the R-FA.
- [7] As the Examiner considered the application not to comply with the *Patent Act*, pursuant to subsection 30(6) of the *Patent Rules*, the application was forwarded to the Board for review on July 21, 2015, with an explanation outlined in a Summary of Reasons (“SOR”). The SOR indicated that while the proposed claims 1-70 overcame the obviousness defect, these claims introduced a new defect relating to a lack of unity of invention under subsection 36(1) of the *Patent Act*. Namely, while claims 1-37 (“Group A”) were directed to one invention, claims 38-70 (“Group B”) were directed to another.
- [8] In a letter dated October 5, 2015, the Board forwarded to the Applicant a copy of the SOR and offered the Applicant an opportunity to make further submissions and/or attend an oral hearing.
- [9] In a December 11, 2015 response to the SOR (“R-SOR”), the Applicant indicated that it wished to proceed with an oral hearing but also indicated that it would await the completion of the Board’s preliminary review before making further written submissions.

[10] The present panel of the Board (“the Panel”) was formed to review the application under paragraph 30(6)(c) of the *Patent Rules*.

[11] In a Preliminary Review letter dated March 21, 2017 (“the PR letter”), the Panel set out its preliminary analysis of the issues to be resolved and proposed a date and time for an oral hearing.

[12] In an April 12, 2017 response to the PR letter (“R-PR”), the Applicant submitted further proposed claims 1-37, which aligned with claims indicated by the Panel to be allowable in the PR letter.

[13] In response to a telephone conversation with the Applicant on May 5, 2017 concerning a remaining indefiniteness issue with one of the further proposed claims, the Applicant submitted a revised set of proposed claims 1-37 on May 10, 2017.

[14] As a result of the revised set of proposed claims submitted on May 10, 2017, an oral hearing is no longer necessary since the Panel’s recommendation is that the claims on file be amended to correspond with those submitted on May 10, 2017 (with a minor grammatical correction thereto) and that the application be thereafter allowed.

ISSUES

[15] The issues to be resolved by this recommendation are whether:

- Claims 1-7, 9-15 and 17-35 on file would have been obvious;
- Claim 6 on file is indefinite;
- Proposed claims 1-70 in the R-FA introduce a lack of unity of invention defect but overcome the obviousness defect; and
- Revised set of proposed claims 1-37 as filed on May 10, 2017 overcome the abovementioned defects.

LEGAL PRINCIPLES AND OFFICE PRACTICE

Claim Construction

[16] In accordance with *Free World Trust v Électro Santé Inc*, 2000 SCC 66, 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 paragraphs 49(f) and (g) and 52). In accordance with the *Manual of Patent Office Practice* [“MOPOP”], §13.05 (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.

Obviousness

[17] The *Patent Act* requires that the subject matter of a claim not be obvious to a person skilled in the art. Section 28.3 of the *Patent Act* provides:

28.3 The subject matter defined by a claim in an application for a patent in Canada must be subject matter that would not have been obvious on the claim date to a person skilled in the art or science to which it pertains, having regard to

- (a) information disclosed more than one year before the filing date by the applicant, or by a person who obtained knowledge, directly or indirectly, from the applicant in such a manner that the information became available to the public in Canada or elsewhere; and
- (b) information disclosed before the claim date by a person not mentioned in paragraph (a) in such a manner that the information became available to the public in Canada or elsewhere.

[18] In *Apotex Inc v Sanofi-Synthelabo Canada Inc*, 2008 SCC 61 at para. 67 [*Sanofi*], the Supreme Court of Canada stated that it is useful in an obviousness inquiry to use the following four-step approach:

- (1) (a) Identify the notional "person skilled in the art";
 - (b) Identify the relevant common general knowledge of that person;
- (2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;
- (3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;
- (4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

Unity of Invention

[19] Subsection 36(1) of the *Patent Act* states:

Patent for one invention only

36 (1) A patent shall be granted for one invention only but in an action or other proceeding a patent shall not be deemed to be invalid by reason only that it has been granted for more than one invention.

[20] Section 36 of the *Patent Rules* sets out when an application is directed to "one invention only":

36 For the purposes of section 36 of the Act or of the Act as it read immediately before October 1, 1989, an application does not claim more than one invention if the subject-matters defined by the claims are so linked as to form a single general inventive concept.

[21] As specified in the *MOPOP* §14.06 (revised November 2013), a lack of unity defect may become apparent through either an *a priori* or an *a posteriori* evaluation of the claims:

The two aspects of the unity of invention requirement can be considered separately as: 1) the need for a common set of elements among the claims, and 2) the requirement that the common set of elements be new and unobvious (i.e. inventive) over the prior art.

The former can be assessed without regard to the state of the art, and is referred to as an *a priori* evaluation of unity of invention, whereas the latter requires the state of the art to be considered and is referred to as an *a posteriori* evaluation. A lack of unity of invention is a defect in an application regardless of whether it is identified *a priori* or *a posteriori*.

Indefiniteness

[22] Subsection 27(4) of the *Patent Act* states:

(4) 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.

[23] In *Minerals Separation North American Corp v Noranda Mines Ltd*, [1947] Ex CR 306, 12 CPR 99 at 146, the Court emphasized the obligation of an applicant to make clear in his 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

Claim Construction

[24] In our PR letter, we set out our view of the person skilled in the art and the relevant CGK:

The person skilled in the art

In the Final Action (“FA”) at page 2, the Examiner characterized the person skilled in the art as “a composite of engineers or technologists experienced [in] pipeline distribution networks, fluid dynamics and power generation, faced with the question of how to best make use of wasted energy in pipeline systems.”

The Applicant did not dispute the above characterization. In our view, it is generally consistent with the field to which the instant application relates. Therefore we adopt it for the purposes of our analyses below, with the exception of the characteristic “faced with the question of how to best make use of wasted energy in pipeline systems”, which relates more to the skilled person’s CGK, rather than who that person is. This characteristic, phrased in slightly different terms, is covered by the second point of CGK below.

The relevant common general knowledge

In the FA at page 2, the CGK was set out as including:

- Knowledge regarding current practices in power generation within pipeline systems;
- Knowledge that wasted energy in transporting fluids via a pipeline can be recovered and generated into electrical power;
- Knowledge that locations where excess pressure and energy exist due to, for example, a change in elevation, artificial pumping, temperature differences, control valves or regulators, are prime locations to capture or recycle energy;
- Knowledge of fluid dynamics and properties of different fluids that are mainly transported via a pipeline distribution network, the different fluids including oil, gas, water, mixtures of such, sewage and oil sand slurries; and
- Knowledge of general characteristics of oil sand production, including familiarity with the variable flow rates encountered with oil sand production and conditions where the flow must be modified to avoid sanding-off or vapour breakout.

This characterization of the skilled person’s CGK was also not disputed by the Applicant and so we adopt it for our analyses.

To the above, we would add that, based on the background information in the instant application, referred to in the FA, the skilled person was aware that:

- based on the variable flow rates in oil sand slurry pipelines and the requirement to avoid “sanding-off”, especially in downhill or undulating terrain applications, smaller pipeline diameters are used to maintain adequate line pressure in low flow rate scenarios;
- the use of smaller diameter piping results in excessive pipeline wear and energy loss at normal or high flowrates; and

- the common practice was to accept the energy loss and use sacrificial components (e.g., orifice plates, valves), which could be replaced when needed.

In view of the above, it is our view that the skilled person would have been motivated to find a solution other than using smaller diameter pipelines to maintain adequate backpressure in the slurry lines.

[25] None of the above was disputed by the Applicant in its subsequent submissions to the Panel dated April 12, 2017 or May 10, 2017.

[26] We also noted at page 3 of the PR letter that in this case we did not undertake a determination as to which elements of the claims were essential versus non-essential:

The FA did not identify any elements of the claims as being non-essential, nor did it identify any issues regarding the interpretation of claim language. There was no disagreement between the Examiner and Applicant in this regard and so we proceed on the same basis in our analyses, with the exception of the issue discussed below with regard to the language of claim 6 of the claims on file at the time of the FA (“claims on file”).

[27] Again, none of the above was disputed by the Applicant in its subsequent submissions to the Panel dated April 12, 2017 or May 10, 2017.

Obviousness

- (1) (a) *Identify the notional “person skilled in the art”*
 (b) *Identify the relevant common general knowledge of that person*

[28] The person skilled in the art and the relevant CGK were previously set out under Claim Construction.

- (2) *Identify the inventive concept of the claim in question or if that cannot readily be done, construe it*

[29] In the PR letter at page 5, we set out our view of the inventive concept in light of that identified in the FA:

In the FA at page 2 the inventive concept was identified as:

the recovery of energy from an oil sand slurry pipeline comprising water, bitumen and suspended solids including sand.

The Applicant did not dispute the above in the R-FA, instead focusing on the detailed analysis at *Sanofi* step (4) and the indication in the FA that certain dependent claims were allowable.

To the inventive concept set out in the FA, we add that the energy recovered is braking energy that results from application of a negative head to the flow of oil sand slurry. This inventive concept is in our view representative of the independent claims. We take the dependent claims to represent refinements of this inventive concept.

[30] This view was not disputed by the Applicant in its subsequent submissions to the Panel dated April 12, 2017 or May 10, 2017.

(3) Identify what if any differences exist between the matter cited as forming part of the “state of the art” and the inventive concept of the claim or the claim as construed

[31] In the PR letter, we set out our preliminary view that we agreed with the difference between the state of the art and the inventive concept as identified in the FA, which was stated as:

that energy recovery is applied to an oil sand slurry pipeline instead of fluid networks such as gas, oil, water or sewage.

[32] This view has not been disputed by the Applicant.

(4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

[33] Our preliminary opinion in respect of the obviousness of the claims on file are set out at page 7 of the PR letter:

Having reviewed the prosecution and the instant application, the panel is of the preliminary view that we agree with the conclusions set out in the FA that claims 1-7, 9-15 and 17-35 would have been obvious and therefore non-compliant with section 28.3 of the *Patent Act*.

Briefly, we note that claims 1 and 17 on file are not limited to any particular means of applying a negative head to an oil sand slurry flow. As such, we agree that these claims would have been obvious to the skilled person in light of the suggestion to recover excess energy from various fluid flows, and in light of the motivation from the CGK to find a better way to generate backpressure in the oil sand slurry lines during times of low flow rates.

Further, regarding the conclusions in the FA as to the dependent claims having been obvious, the Applicant in the R-FA did not assert the patentability of any of the additional features of these claims. Therefore, it is our preliminary view that the dependent claims would have been obvious as well.

[34] The above opinion was not disputed by the Applicant in its subsequent submissions to the Panel dated April 12, 2017 or May 10, 2017.

[35] In light of the above, it is our view that claims 1-17, 9-15 and 17-35 on file would have been obvious and therefore non-compliant with section 28.3 of the *Patent Act*.

Indefiniteness

[36] In the PR letter, we set out our preliminary view that claim 6 on file is indefinite stating:

Upon review of claim 6 on file, we are unable to ascertain the meaning of the expression “in-line generator” in light of the specification as a whole. The description, at page 8, refers only to a generator 38 that is coupled to a shaft of the pump 12, the generator being present to apply a negative torque to the pump (see also Figure 2). There is no disclosure of a generator that is “in-line” (i.e., placed in the flow of oil sand slurry). Further, we see nothing that was part of the CGK that would clarify the meaning of this expression. As such, it is our preliminary view that the scope of this expression is indefinite and therefore non-compliant with subsection 27(4) of the *Patent Act*.

[37] This view was not disputed by the Applicant in its subsequent submissions to the Panel dated April 12, 2017 or May 10, 2017.

[38] In light of the above, we conclude that claim 6 on file is indefinite and therefore does not comply with subsection 27(4) of the *Patent Act*.

Proposed Claims 1-70

Unity of Invention

[39] The SOR indicated that proposed claims 1-70 submitted with the R-FA are defective because they introduce a lack of unity of invention issue.

[40] In the PR letter at page 9, we set out our preliminary analysis as to why we agree that a lack of unity of invention defect is present:

In the present case, the Applicant in the R-FA chose to distinguish the proposed claims 1-70 from the cited prior art by two different paths, the first being limiting proposed independent claims 1 and 17 to embodiments where negative head is applied to the oil sand slurry by a pump braking action, and the second by limiting proposed independent claims 38 and 52 to embodiments where the negative head is applied to the oil sand slurry during times of low process flow rates.

In our view, this creates a clear *a posteriori* unity defect by creating two distinct sets of common elements which are said to distinguish over the prior art.

[41] The above was not disputed by the Applicant in either the April 12, 2017 or May 10, 2017 submissions.

Proposed claims 1-37

[42] In the PR letter at page 9, after having considered the lack of unity of invention defect, the Panel considered whether proposed claims 1-37 (the Group A claims identified in the PR letter at page 7) would overcome the obviousness defect. It was our preliminary view that proposed claims 1-37 would not have been obvious:

[h]aving considered the prosecution, including the prior art, we agree that proposed claims 1-37, limited in accordance with the conclusions of the Examiner as to which claims on file are allowable, would not have been obvious to the skilled person.

Briefly, while the prior art suggests the recovery of excess energy from the flow of various fluids in a distribution network, the prior art neither discloses no[r] suggests the recovery of such energy by applying a braking action to the pump of such a system itself. The prior art focuses on the addition of a component in the fluid flow to perform such recovery (e.g. D1 at page 4, lines 1-9).

[43] We also noted that:

[i]t is apparent from the SOR that the proposed claims submitted with the R-FA were considered by the Examiner to be patentable, except for the defect relating to unity of invention. We note that if this situation had been reached earlier in the prosecution (prior to the issuance of the FA under subsection 30(3)), the *Patent Rules* would have permitted the Applicant to remove claims 38-70, and in all likelihood proposed claims 1-37 would have been allowed.

Given the facts of the present case and that the panel agrees that proposed claims 1-37 would not have been obvious, it is our preliminary view that we would recommend to the Commissioner of Patents that an amendment under subsection 30(6.3) of the *Patent Rules*, deleting the claims on file and replacing them with proposed claims 1-37, is “necessary” for compliance with the *Patent Act* and *Patent Rules*.

Proposed claims 38-70, pursuant to subsection 36(2.1) of the *Patent Act*, “may be made the subject of a divisional application, if the divisional application is filed before the issue of a patent on the original application.”

We also note that an amendment to dependent claim 6 (repeated in the proposed claims as proposed claim 6), given the indefiniteness of the language under subsection 27(4) of the Act, is also “necessary” under subsection 30(6.3) of the *Patent Rules*.

[44] The Applicant, in the R-PR of April 12, 2017, did not dispute any of the above and submitted further proposed claims 1-37 to address the Panel’s preliminary opinion, including the defect with respect to claim 6 on file under subsection 27(4) of the *Patent Act*.

[45] Upon review of the R-PR, the Panel concluded that the language of further proposed claim 6 was still problematic and so informed the Applicant in a telephone conversation on May 5, 2017. On May 10, 2017 the Applicant submitted a revised set of proposed claims 1-37, amending the language of further proposed claim 6.

Revised set of proposed claims 1-37 as filed on May 10, 2017

[46] As the revised set of proposed claims 1-37 submitted on May 10, 2017, in our view, overcome the obviousness defect, the lack of unity defect and the indefiniteness defect, the Panel concludes that a specific amendment to substitute these claims for the claims on file (with a minor correction to revised proposed claim 6 to change the spelling of “breaking” to “braking”) is “necessary” pursuant to subsection 30(6.3) of the *Patent Rules*.

CONCLUSIONS

[47] We have determined that claims 1-17, 9-15 and 17-35 on file would have been obvious and therefore do not comply with section 28.3 of the *Patent Act* and that claim 6 on file is indefinite and therefore does not comply with subsection 27(4) of the *Patent Act*. We have also determined that proposed claims 1-70 submitted with the R-FA introduce a lack of unity of invention defect, contrary to subsection 36(1) of the *Patent Act*.

[48] We have further determined that the revised set of proposed claims 1-37 (with a minor correction to revised proposed claim 6 to change the spelling of “breaking” to “braking”) submitted May 10, 2017 overcome the above noted defects and are therefore “necessary” pursuant to subsection 30(6.3) of the *Patent Rules*.

RECOMMENDATION OF THE BOARD

[49] In view of the above, we recommend that the Applicant be notified, in accordance with subsection 30(6.3) of the *Patent Rules*, that specific amendments are “necessary” for compliance with the *Patent Act* and *Patent Rules*, namely that:

- Revised set of proposed claims 1-37 submitted on May 10, 2017 be substituted for the claims on file; and
- The word “breaking” in revised proposed claim 6 submitted on May 10, 2017 be replaced with “braking.”

Stephen MacNeil
Member

Paul Fitzner
Member

Leigh Matheson
Member

DECISION

[50] I concur with the conclusions and recommendation of the Board. In accordance with subsection 30(6.3) of the *Patent Rules*, I hereby notify the Applicant that the following amendments must be made within three (3) months of the date of this decision, failing which I intend to refuse the application.

[51] In accordance with paragraph 31(b) of the *Patent Rules*, the following amendments, and only these amendments, may be made to the application:

- Revised set of proposed claims 1-37 submitted on May 10, 2017 be substituted for the claims on file; and
- The word “breaking” in revised proposed claim 6 submitted on May 10, 2017 be replaced with “braking.”

Johanne Bélisle
Commissioner of Patents

Dated at Gatineau, Quebec,
this 21st day of September, 2017