Commissioner’s Decision # 1379

Décision du commissaire # 1379

TOPIC: O00, A11, B00

SUJET: O00, A11, B00

Application No. : 2,474,188

Demande № : 2,474,188

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2,474,188, 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 Board and the decision are as follows:

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INTRODUCTION

[1] This matter concerns a review of patent application no. 2,474,188 [“the ‘188 application”] entitled “Method and Device for Preventing Fouling by Shellfish.” The Applicant is Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek TNO.

[2] The application claims a method for preventing fouling by shellfish (i.e., the accumulation of shellfish on wetted surfaces) in industrial plant cooling systems, such as cooling equipment of power plants or the chemical industry, fed with seawater or fresh surface water that is laden with shellfish larvae, which deposit on the equipment. According to the invention, the surface water to be taken in, destined for the industrial plant cooling system, is guided along a suitable substrate, onto which substrate shellfish grow, so that the water that reaches the cooling system is depleted of the nutrients the larvae require to mature, and fouling is reduced.

[3] For the reasons that follow, we recommend that the rejection of the application be withdrawn and the application allowed.

BACKGROUND

[4] The ‘188 application is based on a PCT application, filed January 29, 2003, and thus it bears this date as its filing date. The application is based on a Dutch priority application, filed January 30, 2002. This is the relevant date for assessing obviousness.

[5] The Final Action dated January 28, 2013 states that the claims fail to comply with section 28.3 of the *Patent Act* for comprising subject-matter that would have been obvious on the claim date to a person skilled in the art. The Final Action further states that several claims are indefinite and do not comply with subsection 27(4) of the *Patent Act*.

[6] In a response to the Final Action dated July 22, 2013, pursuant to subsection 30(5) of the *Patent Rules* the Applicant cancelled the claims that were in the application at that time and replaced them with claims 1-10, the latter set of claims thus becoming the "claims on file". The Applicant argued that the claims on file were clear and definite and that they defined non-obvious subject-matter.

[7] Having determined the Applicant's amendments and arguments did not render the application allowable, pursuant to subsection 30(6) of the *Patent Rules* the Examiner forwarded the file to the Patent Appeal Board. The file included a Summary of Reasons [SOR] for maintaining that the application did not comply with the *Patent Act*. The SOR stated that the claims on file were no longer subject to the indefiniteness defect raised against the previous set of claims, but that claim 1 did not comply with section 38.2 of the *Patent Act* for including new subject-matter and that the claims on file were obvious. A copy of the SOR was forwarded to the Applicant on October 15, 2013.

ISSUES

[8] In view of the grounds for rejection stated in the SOR the issues to be determined are:

- Does claim 1 include improperly added new matter?
- Do claims 1-10 comprise obvious subject-matter?

LEGAL PRINCIPLES

Purposive construction

[9] Purposive construction is an interpretive exercise in determining the meaning and scope of the claims. Claims construction is antecedent to consideration of validity: *Whirlpool*

Corp v Camco Inc, 2000 SCC 67 at para. 43 ["*Whirlpool*"]. Purposive construction requires that the claims be interpreted from the point of view of the person skilled in the art, who possesses the common general knowledge of the particular art: *Whirlpool* at para. 53. During purposive construction, the elements of the claimed invention are identified as essential or non-essential: *Free World Trust v Électro Santé Inc*, 2000 SCC 66, at para. 31 ["*Free World Trust*"]. An element is considered non-essential if, based on a purposive construction, the skilled addressee would appreciate an element of the claim could be omitted or substituted without having a material effect on the working of the invention (*Free World Trust*, para. 55). According to the Examination Practice Respecting Purposive Construction - PN2013-02, the essential elements of a claim are those elements that contribute to the proposed solution to the problem identified in the application.

New matter

[10] Section 38.2 of the *Patent Act* sets forth the conditions under which amendments may be made to the specification and drawings of a patent application:

> 38.2 (1) Subject to subsections (2) and (3) and the regulations, the specification and any drawings furnished as part of an application for a patent in Canada may be amended before the patent is issued.
>
> Restriction on amendments to specifications
> (2) The specification may not be amended to describe matter not reasonably to be inferred from the specification or drawings as originally filed, except in so far as it is admitted in the specification that the matter is prior art with respect to the application.
>
> Restriction on amendments to drawings
> (3) Drawings may not be amended to add matter not reasonably to be inferred from the specification or drawings as originally filed, except in so far as it is

> admitted in the specification that the matter is prior art with respect to the application.

[11] The question as to whether matter added to the specification by amendment complies with section 38.2 of the *Patent Act* is considered from the point of view of the person skilled in the art at the time the application was filed: *Re Application No 315,073* (1981), CD 904 (PAB and Com'r Pat).

[12] The assessment as to the presence of new matter therefore requires a comparison of the pending specification and drawings with those of the originally filed application, and a determination as to whether the subject-matter of the amendments is that which would have been reasonably inferred from the original specification or drawings by the person skilled in the art at the time of filing.

Obviousness

[13] The subject-matter of a patent claim must not have been obvious to persons skilled in the art or science on the relevant date. 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.

[14] In *Sanofi*, the Supreme Court of Canada indicated that it is useful in an obviousness inquiry to follow a four-step approach, as follows:

> (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?

CLAIMS ON FILE: 1-10

[15] The claims on file, which are the subject of this review, include independent claim 1 and dependent claims 2-10, each of which depends directly or indirectly on claim 1. The first issue in this review, new matter, relates only to claim 1. As for the second issue, obviousness, it is to be assessed on a claim-by-claim basis, starting with independent claim 1. In any obviousness analysis, dependent claims need only be assessed if the claim upon which they depend is found to be obvious. In this case, since we have determined that claim 1 would not have been obvious, it is not necessary to assess claims 2-10.

[16] Claim 1 reads as follows:

> 1. A method for obtaining an industrial cooling water flow, comprising the steps of:
>
> (i) providing precursors of shellfish on a substrate,
> (ii) bringing a flow of water into contact with said precursors of shellfish,
> (iii) allowing said precursors to develop into harvestable shellfish,
> (iv) harvesting at least a portion of said harvestable shellfish while said flow of water is purified and is obtained as a purified flow of cooling water, and
> (v) performing at least one additional step selected from adding to said flow of water nutrients that are essential to shellfish and increasing the temperature of said flow of water, to improve growth conditions of the shellfish.

Claim 1, purposively construed

[17] Since claims must be considered from the point of view of the skilled person in view of their common general knowledge, it is first necessary to identify such a person and such knowledge.

The person skilled in the art and the relevant common general knowledge

[18] The Final Action identified the person skilled in the art as being "a team of industrial water flow specialists and shellfish specialists."

[19] In regard to the common general knowledge, the Final Action states:

> Accordingly, a team of industrial water flow specialists is familiar with the problems associated with fouling due to shellfish (D1 [should read 'description'], page 1, lines 4-23) and the means in which to remedy the problem. A team of shellfish specialists is familiar with how to grow shellfish, with knowledge of the nutrients required, temperature requirements and substrates needed to attach the shellfish to in order to maximize the growth of the shellfish.

[20] In its response to the Final Action the Applicant disagreed with the composition of the team set out in the Final Action, stating:

> "Shellfish specialists" in the context of the present invention are typically mussel fisherman. These people generally do not team up with industrial water flow specialists. Therefore such a team is of clearly fictional nature and it is not fair to use such a fictitious construct in the assessment of inventive step.

[21] The SOR cites subsection 9.02.02 of the *Manual of Patent Office Practice* for the proposition that the person skilled in the art can represent a team of individuals whose conjoint knowledge is relevant to the invention in suit.

[22] We agree that the skilled person can comprise a team. For instance, in *AstraZeneca Canada Inc v Apotex Inc*, 2014 FC 638, Justice Rennie found that the skilled person's expertise included knowledge from several fields (chemistry, pharmacology and medicine). However, in so finding, the judge stated, at para. 53, that "a composite skilled person in this case reflects the diverse team of experts likely employed by pharmaceutical companies to develop and test drugs." It is understood from this decision that such a team is reflective of one that would have existed in the real world at the relevant date, *i.e.*, a team of experts likely employed by the relevant type of company. In the present case we agree with the Applicant's submission that the team as proposed in the Final Action is not reasonable because it is of a fictional nature and not reflective of one that would have existed in the real world.

[23] In our view, the person skilled in the art is a specialist in industrial plant cooling systems, and this person has knowledge of such systems, including knowledge of systems and methods for feeding the apparatuses with seawater or fresh surface water, problems associated with such systems, including the accumulation of shellfish in the apparatuses,

and conventional methods used to remove such undesired deposits. According to the description, conventional methods for dealing with the accumulation of shellfish in cooling systems included adding chemicals to the water, heating the water, and using mechanical means such as brushes [p. 1, lines 13-23].

[24] The skilled person does not comprise a team including a "shellfish specialist". There is nothing on the record to suggest that at the time of the applicant's invention there were teams comprising skilled persons in the field of industrial plant cooling systems fed with seawater or fresh surface water and skilled persons in the field of shellfish farming. Therefore, the common general knowledge of the person skilled in the art of industrial plant cooling systems does not include all of the knowledge possessed by the person skilled in the art of shellfish farming.

Meanings of certain claim terms

[25] Before determining the essential elements of the claims, there are a few claim terms requiring interpretation, namely: "precursors of shellfish"; "said flow of water is purified"; and "obtained as a purified flow of cooling water".

[26] Regarding the expression "precursors of shellfish", the description, at p. 3, provides a definition: "The term precursor is understood to mean organisms in an earlier stage of life than the eventual shellfish to be harvested."

[27] As for the term "purified", from the expression "said flow of water is purified", the description, at p. 2, provides the following: "What is achieved by having the precursors develop into harvestable shellfish is that during growth on the substrate, the shellfish take up nutrients from the surface water. As a result, the surface water is purified and, if this water is used as cooling water, no, or at least a reduced quantity of shellfish can feed on this water in that the water has become specifically depleted of nutrients essential to these

organisms in particular" [underlining added]. Accordingly, the skilled person would understand "purified" to refer to the removal of nutrients essential to the shellfish, *i.e.*, removal of "biomass particles" (p. 3, line 12) such as algae and phytoplankton, from the water. The skilled person would expect that the "purified" water would still contain the shellfish larvae.

[28] Finally, concerning the expression "obtained as a purified flow of cooling water", the description provides context, at p. 1: "by leading the surface water to be taken in, destined for industrial plants, along a suitable substrate…". This means that the claimed method is being carried out *prior* to the resulting cooling water flow being used in industrial plants. In other words, the skilled person would understand that, regarding the earlier steps of providing precursors of shellfish on a substrate and bringing a flow of water into contact with said precursors of shellfish, the substrate is placed at the intake of an industrial plant's cooling system.

The essential elements of the claimed invention

The problem identified in the application

[29] The description, at p. 1, describes several problems associated with conventional systems and methods for removing deposits of shellfish in industrial plant cooling systems fed with seawater or fresh surface water. The description states:

> In surface water (seawater or fresh water), depending on the season, sometimes large quantities of larvae of shellfish (clams, oysters, barnacles, etc.) occur. If this water is taken in, for instance for cooling technical apparatus, the larvae can deposit on the surfaces of the apparatus, where they develop into shellfish. The resultant accumulation of shellfish in the apparatus leads to, inter alia, disturbance of the flow profile of the water and/or reduction of heat transmission

> in cooling apparatus. Moreover, the bonding of the shellfish to the surface of the apparatus is very strong so that the shellfish are difficult to remove.
>
> Conventional methods for removing such undesired deposits of shellfish, or preventing these deposits, comprise, for instance, the use of pesticides. However, such agents are costly and generally entail a burden to the environment. Also, periodically, the temperature of the water in the apparatus may be increased, to attempt to detach the deposited shellfish. However, increasing the temperature entails costs and, furthermore, is not possible in all apparatus. Another possibility is for deposits having formed to be removed mechanically, for instance with the aid of brushes. However, to this end, generally, the cooling water flow needs to be interrupted. Furthermore, mostly, not all parts of the apparatus are readily accessible to such mechanical means.

The proposed solution to the problem

[30] The description, at pp. 1-2, generally describes the Applicant's proposed solution to these problems, namely a method that prevents shellfish larvae that enter the cooling system with the seawater from depositing/maturing by depleting the water of the nutrients required for growth conditions of the shellfish:

> The present invention contemplates providing a system that does not have these drawbacks. It has been found that by leading the surface water to be taken in, destined for industrial plants, along a suitable substrate onto which substrate shellfish grow, this object can be met. Therefore, in a first aspect, the present invention relates to a method for obtaining an industrial cooling water flow, comprising the steps of:
> (i) providing precursors of shellfish onto a substrate,
> (ii) bringing a flow of water into contact with said precursors of shellfish,
> (iii) allowing said precursors to develop into harvestable shellfish, and
> (iv) harvesting at least a portion of said harvestable shellfish, while the flow of water is purified and is obtained as a flow of purified cooling water;

> wherein growth conditions of said shellfish are improved by adding nutrients to said flow of water and/or by increasing the temperature of said flow of water.

[31] Having considered the above-noted problems the Applicant sought to address with the claimed invention, and in view of how the skilled person would understand the terms used in the claims, the skilled person would determine the essential elements of claim 1 to be the following steps in a method for obtaining an industrial cooling water flow that is depleted of nutrients essential to shellfish, thereby removing the conditions for the growth of shellfish in the cooling apparatus:

- providing precursors of shellfish onto a substrate located at the intake of an industrial plant's cooling system;
- bringing a flow of water into contact with the precursors;
- allowing the precursors to develop into harvestable shellfish;
- allowing the shellfish to deplete the flow of water of nutrients essential to the shellfish, thus providing a purified flow of cooling water; and
- improving growth conditions of the shellfish by adding nutrients that are essential to shellfish to the flow of water and/or increasing the temperature of the flow of water.

[32] The above method steps are considered essential in that they are required for the solution to the problems with conventional systems in the prior art by "purifying" the water entering an industrial plant's cooling system, and they cannot be substituted or omitted without having a material effect on the working of the invention.

[33] As regards the final step of improving the growth conditions of the shellfish, the description teaches that "[t]he shellfish will grow more rapidly and that a more efficient purification of the water is obtained" (p. 4, lines15-17). This is described as "surprising" since, for example, "[a]dding nutrients seems to directly oppose the contemplated object,

which is the reduction of fouling, which is the result of, indeed, too many nutrients in the water" (p. 4, lines 17-19). However, the faster growth of the shellfish appears to fully compensate for any disadvantage.

[34] The step of harvesting at least some of the harvestable shellfish [at the intake location] is not considered to be an essential element of the claim, as it is not required for the solution of a method of purifying water entering an industrial plant's cooling system, and it could be omitted without having a material effect on the working of the method. That is not to say that in a practical sense the shellfish need not be culled as they age and die, but this step is outside the solution provide by the inventor.

NEW MATTER

Analysis

[35] The SOR states on p. 2 that the subject-matter of claim 1 does not comply with section 38.2 of the *Patent Act*. The following reasons were provided:

> The subject-matter of claim 1 as amended by the applicant's correspondence received on 2013-07-22, does not comply with section 38.2 of the *Patent Act* because it is not reasonably to be inferred from the specification or drawings as originally filed. The phrase "that are <u>essential</u> to shellfish" that was added to claim 1 is new matter. The term "essential" was not present in the original specification or drawings and cannot be reasonably inferred therefrom for the following reasons:
>
> - Only 3 nutrients were described in the original specification – nitrogen, phosphorus and oxygen.
> - While nitrogen, phosphorus and oxygen may be considered essential for the growth of shellfish, they are not the only nutrients that are essential to the growth of shellfish.

- By introducing this limitation into claim 1, the applicant is both broadening (it is broader than the 3 specific nutrients specified) and narrowing (it is narrower than the term "nutrients") the scope of the claims beyond what was originally submitted.

[36] As stated at para. [12], the assessment as to the presence of new matter requires a comparison of the pending specification and drawings with those of the originally filed application, and a determination as to whether the subject-matter of the amendments would have been reasonably inferred from the original specification or drawings by the person skilled in the art at the time of filing.

[37] In doing so, we note that in the phrase "nutrients that are essential to shellfish… to improve growth conditions of the shellfish", the expression "that are essential to shellfish" is supported by the originally-filed specification. The description states, at p. 2, lines 12-16, "the shellfish take up nutrients from the surface water. As a result, the surface water is purified… in that the water has become specifically depleted of nutrients essential to these organisms". Moreover, at p. 4, lines 17-20, the description explains that "at first sight adding nutrients seems to directly oppose the contemplated object" which is to reduce fouling resulting from "too many nutrients in the water" by removing those nutrients. What the skilled person would take from this contradiction is that the nutrients which are added are the same as those which the invention seeks to remove, *i.e.*, nutrients that are essential to shellfish.

[38] Further, while the SOR states that only three nutrients were specifically described in the original specification, we note that the relevant passage of the description, at p. 4, lines 22-24, *i.e.*, "[t]he growth conditions of the shellfish can, for instance, be improved by adding nutrients to the water such as nitrogen… phosphorus… and oxygen", refers simply to "nutrients" and not to the allegedly problematic phrase "nutrients that are essential to shellfish."

[39] In view of the above, the skilled person would understand that claim 1, as amended in response to the Final Action, does not include new matter, and that the claimed subject-matter complies with section 38.2 of the *Patent Act*.

OBVIOUSNESS

Analysis

(1)(a) Identify the notional person skilled in the art

[40] The person skilled in the art of industrial plant cooling systems fed by seawater or fresh surface water was identified at para. [23].

(1)(b) Identify the relevant common general knowledge of that person

[41] Our conclusions regarding the common general knowledge of this person are stated at para. [23].

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

[42] The Final Action states at p. 3 that the inventive concept is "a method of obtaining an industrial cooling water flow by using a substrate with shellfish attached thereto to purify a flow of water."

[43] In its July 22, 2013 response to the Final Action the Applicant argued at p. 3 that an obviousness analysis must consider the claim wording, not an abstract concept. The Applicant added:

> In any event, the Examiner's comment does not give enough credit to the inventive step underlying the present invention. As follows from page 2, lines 11-16 of the present application, it is not just "purifying" a flow of water; the invention provides a flow that is *specifically depleted* in components that cause trouble, *viz.* the nutrients essential for shellfish. That such a purification is obtained by using the same or similar shellfish but in a different location where they can do no harm, but in fact yield high value is extremely valuable and non-obvious.

[44] In the response to the Final Action, the Applicant also amended claim 1 to include step (v) of improving the growth conditions of the shellfish.

[45] Having considered the problems the Applicant sought to address with the claimed invention, noted earlier at para. [29], the skilled person would understand the inventive concept to be a method for obtaining an industrial cooling water flow depleted of nutrients essential to shellfish, comprising the steps listed at para. [31] as the essential elements of claim 1, whereby the depletion of nutrients in the water prevent shellfish larvae present in the water from depositing/maturing within the cooling system.

(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

[46] In the Final Action and SOR, a single prior art reference was cited: US Patent 3,996,895, issued to John Wiegardt on December 14, 1976. This document, entitled "System for Growing Concentrated Populations of Oysters and Related Shellfish", is identified in the Final Action and SOR as D1.

[47] The Final Action stated, at p. 2, that the claims were obvious having regard to D1, in the light of the common general knowledge of the person skilled in the art.

D1: The Wiegardt patent

[48] The Final Action states, at p. 2, "D1 discloses a method and device for use in an industrial water flow comprising providing precursors of shellfish onto a substrate, bringing a flow of water into contact with the precursors to shellfish, allowing the precursors to develop into shellfish and harvesting the shellfish." The Final Action further states [at p. 5] that the skilled person reading D1 would immediately recognize that the growth conditions of shellfish are improved by adding nutrients to the flow of water and/or increasing the temperature of the flow of water.

[49] In its July 22, 2013 response to the Final Action, the Applicant argued, at p. 2, that D1 relates to a system *for artificially growing shellfish*, and added that the skilled person "would scarcely come to the conclusion that shellfish could be used to purify industrial cooling water."

[50] Based on the unique facts of this case, and the nature of the skilled person, the question arises as to whether the cited prior art reference is a relevant prior art document for purposes of the obviousness analysis. The Applicant argues that D1 "has no relevance to applicant's invention as claimed" [p. 3 of Applicant's September 19, 2012 response to an earlier Office Action], although the Applicant has also addressed the obviousness question on the basis that D1 would have been found by the skilled person.

[51] The skilled person is expected to perform a normally diligent search, seeking a solution to the problem but not knowing the answer in advance: *Xerox of Canada Ltd v IBM Canada Ltd* (1977), 33 CPR (2d) 24 (FCTD), citing *General Tire & Rubber Co v Firestone Tyre & Rubber Co*, [1972] RPC 457 (CA), at pp 499-500. The idea that the skilled person carries out a search of the prior art without knowing the solution provided by the claimed invention under consideration is also reflected in the language of the

fourth step of the *Sanofi* framework for assessing obviousness. Thus, the person skilled in the art is presumed to be looking to solve a problem or problems in the art without looking for any particular method of achieving the objective but rather trying to reach it by any practical method he can discover.

[52] In the present case, as discussed at para. [23], the skilled person would have general knowledge of conventional methods for removing undesired deposits of shellfish in industrial cooling systems, or preventing these deposits, as well as their limitations.

[53] The skilled person would have been looking for a solution to deposits of shellfish in industrial cooling systems that could be achieved at a relatively low cost, and that would be environmentally friendly, compatible with all apparatus being used in cooling systems, effectively ridding all parts of the apparatus of shellfish without interrupting the cooling water flow. The skilled person, unaware of the solution proposed by the claimed subject-matter of the present application, would not be looking for any particular solution, just one that addressed as many of the above-noted problems as possible.

[54] Although we have some doubt as to whether the skilled person would have actually found D1 in a reasonable and diligent search for a solution to these problems, we proceed on the basis that the skilled person could have been aware of D1. We will therefore consider D1 for the purposes of the obviousness analysis.

Differences between the state of the art and the inventive concept of claim 1

[55] A first difference between D1 and the inventive concept of claim 1 is conceded in the Final Action, at p. 3: "D1 does not specifically disclose a method of obtaining a purified industrial cooling water flow by using shellfish but rather discloses a system for growing shellfish." This statement is consistent with the Applicant's views noted at para. [49] regarding what is disclosed by D1.

[56] A second difference is that there is no mention in D1 of reducing shellfish deposits on industrial equipment, nor of achieving the reduction by cleaning the water of algae and phytoplankton, although D1 does include a suggestion that its system could have practical application in an industrial setting to clean the water of algae and phytoplankton [col. 6, lines 23-26 and col. 7, lines 1-6].

[57] A third difference is that while D1 mentions the placement of the apparatus at either the intake or discharge of an industrial plant pumping system [col. 7, lines 1-4], the claimed method requires the apparatus be placed at the intake of an industrial plant cooling system.

[58] Finally, a fourth difference is that D1 does not teach the claimed feature of adding nutrients or increasing water temperature in order to improve growth conditions of the shellfish and thus facilitate the process of purifying the water of nutrients essential to shellfish.

(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?

[59] As noted above, the skilled person would understand that conventional methods of dealing with the problem of shellfish fouling involved the removal or killing of shellfish. Such a person would not think that a solution to the problem could involve improving their growth conditions, *e.g.*, by adding essential nutrients to the water or raising the temperature of the water.

[60] If the skilled person had come across D1, he would not consider it as dealing with the killing off of shellfish larvae in an industrial plant cooling system by depleting the water

of the nutrients they require to live (the first and second differences identified at step 3). It is only in hindsight with the knowledge of the claimed invention and how it works that a couple of isolated sentences could be viewed as pointing that way. What the skilled person having no knowledge of the claimed invention would take from D1 is that "filtering" describes how the shellfish eat, by extracting food from the water, and why there is a need to harness a flow of water to constantly replenish their food source. In still waters they would "filter" the food in short order and they would then die off. The suggestion of using the apparatus in the vicinity of industrial plants [col. 6, lines 17-23] and the further suggestion of positioning the apparatus across either the intake or discharge of a plant's pumping systems [col. 7, lines 1-4] would simply be taken as suggestions of how to take advantage of a flow that already exists in order to grow shellfish for resale.

[61] D1 suggests the potential advantage to the plant of cleaning the water of algae and phytoplankton [col. 6, lines 23-26 and col. 7, lines 1-6], which perhaps would be considered as providing an inducement to an industrial plant to allow the fish farming system to be set up in the vicinity of the intake or discharge of the plant's pumping systems. The advantages to the plant of doing this are not disclosed, but if one wanted to use water in a chemical process, starting from water free of algae and phytoplankton would appear to be advantageous. There are conceivable reasons why one might employ such a shellfish farming system near industrial plants, but there is no suggestion in D1 of the shellfish fouling problem for which the skilled person is seeking a solution. D1 does not mention anything about the issue of shellfish larvae in the water used in a plant's cooling system. The skilled person, devoid of intuition and creativity, would read D1 and say 'this does not solve my problem of shellfish fouling. It discloses cleansing the water of algae and phytoplankton, not shellfish.'

[62] Further, D1 does not describe how positioning the apparatus across the intake of a plant's cooling system in preference to a location at the discharge (the third difference identified

at step 3) would address the problem of shellfish fouling. The skilled person would not have had the idea on his own of killing off the shellfish larvae in the plant's cooling system by depleting the nutrients they require, and D1's suggestion to position the apparatus at either the intake or discharge of the pumping systems would not have given him this idea.

[63] Still further, the claimed feature of adding nutrients or increasing water temperature in order to improve growth conditions of the shellfish and thus facilitate the process of purifying the water of nutrients essential to shellfish (the fourth difference identified at step 3), while it may have been apparent to a shellfish farming specialist, would not have been apparent to the person skilled in the art, a specialist in industrial plant cooling systems. In the skilled person's experience, improving the growth conditions of the shellfish was not something to be done at all, let alone for the purpose of depleting cooling water of shellfish nutrients. That the inventors hit upon this feature is therefore rightfully considered surprising.

[64] We consider that the claimed invention in the present application arose from an original idea: that of using shellfish to solve the problem of shellfish fouling, by introducing them near the water intake of the industrial plant and taking advantage of their ability to deplete the water of nutrients to "purify" the water flowing to the cooling system apparatus, thus preventing shellfish larvae present in the water from depositing/maturing within the cooling system. The inventor, possessed of this idea, found a way of carrying it out that already existed, but in an unrelated field and for a different purpose. However, the person skilled in the art, devoid of intuition and creativity, would not have come up with the idea on his own, even if he had found D1 in a search.

[65] Based on the foregoing analysis, we conclude that the subject-matter of claim 1 would not have been obvious on the claim date.

[66] It follows that dependent claims 2-10, all of which depend directly or indirectly on claim 1, are also unobvious.

RECOMMENDATION OF THE PANEL

[67] The outstanding issues of new matter and obviousness having been resolved in favour of the Applicant, we recommend that the rejection of the application be withdrawn and that the application proceed to allowance.

Paul Fitzner	Ed MacLaurin	Cara Weir
Member	Member	Member

DECISION

[68] I concur with the Patent Appeal Board's findings and recommendations. In accordance with subsection 30(6.2) of the *Patent Rules*, I advise the Applicant that as I consider the outstanding issues to have been addressed, the rejection of the application is withdrawn and the application will proceed to allowance.

Agnès Lajoie
Assistant Commissioner of Patents

Dated at Gatineau, Quebec,
this 14th day of May, 2015