

Commissioner's Decision No. 1516  
Décision du commissaire n° 1516

TOPIC: B-00 Indefiniteness  
B-20 Excessive width  
O-00 Obviousness

SUJET: B-00 Caractère indéfini  
B-20 Portée excessive  
O-00 Évidence

Application No. 2215011  
Demande n° 2215011



IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2215011, having been rejected under subsection 30(3) of the *Patent Rules* (SOR/96–423) as they read immediately before October 30, 2019, has subsequently 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 that the application be allowed only if specific necessary amendments are made.

Applicant:

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## INTRODUCTION

[1] This recommendation concerns the review of rejected patent application number 2215011, which is entitled “Ice-Hockey-Puck Scoring System (IHPSS)” and owned by Hung Quoc Dang. The outstanding defects indicated by the Final Action (FA) are that the claims are obvious and indefinite. The Patent Appeal Board (the Board) has reviewed the rejected application pursuant to paragraph 199(3)(c) of the *Patent Rules* (SOR/2019–251). As explained below, our recommendation is to inform the Applicant by notice pursuant to subsection 86(11) of the *Patent Rules* that certain amendments to the claims are necessary to make the application allowable. If these amendments are made, the application should be allowed; otherwise, it should be refused.

## BACKGROUND

### The application

- [2] Canadian patent application 2215011 was filed on November 6, 1997 and has been open to public inspection since May 6, 1999.
- [3] The invention relates to a system for accurately and reliably detecting when a modified hockey puck crosses a goal line.

### Prosecution history

- [4] On December 18, 2015, an FA was issued pursuant to subsection 30(4) of the *Patent Rules* (SOR/96–423) as they read immediately before October 30, 2019 (the former *Rules*). The FA indicated that the application was defective on two grounds: claims 1 to 13 (the claims on file) are directed to obvious subject matter, contravening section 28.3 of the *Patent Act*, and the claims on file are indefinite, contravening subsection 27(4) of the *Patent Act*.
- [5] In a June 13, 2016 response to the FA, the Applicant submitted an argument against obviousness and proposed an amended set of 3 claims. These proposed claims are narrower than the claims on file: all of these proposed claims indicate that detection of the object involves the distribution of electrets in the object. The Examiner was not persuaded to withdraw the rejection, and considered these proposed claims to remedy the obviousness defect but not the indefiniteness defect. Therefore, pursuant to subsection 30(6) of the former *Rules*, the application was forwarded to the Board for review on behalf of the Commissioner of Patents. On April 26, 2017,

the Board forwarded a copy of the Examiner's Summary of Reasons with a letter acknowledging the rejection to the Applicant.

- [6] A Panel was formed to review the rejected application and make a recommendation to the Commissioner as to its disposition. Following our preliminary review, we sent a letter on June 6, 2019 (the PR letter) presenting our analysis and rationale as to why, based on the record before us, the subject matter of the claims on file complies with section 28.3 of the *Patent Act* but not subsection 27(4) of the *Patent Act*. In accordance with subsection 30(6.1) of the former *Rules*, the PR letter also explained why claims 1, 2, 4, 6 and 8 to 12 on file are overly broad, counter to the requirements noted in the jurisprudence; this defect was observed during the preliminary review. In addition, the PR letter explained why, of the claims proposed in response to the FA, claim 1 is overly broad and claims 1 to 3 do not comply with subsection 27(4).
- [7] On August 9, 2019, the Applicant proposed a set of 8 claims (the proposed claims) to replace those submitted in response to the FA, and accepted our invitation to participate in a hearing.
- [8] That hearing was held on September 4, 2019, and it focused exclusively on these proposed claims. We observed that proposed claim 1 appeared to avoid the defects addressed in the PR letter but that proposed claims 2 to 8 appeared to have significant wording defects. We also asked the Applicant if those claims were intended to depend upon claim 1, which he confirmed.
- [9] Nothing has changed in the written record concerning the claims on file since the preliminary review, so we refer to the analysis and rationale expressed in the PR letter regarding those claims. We also consider the proposed claims here.

## ISSUES

- [10] This review addresses the issues of whether the claims on file:
- define subject matter that would have been obvious, contravening section 28.3 of the *Patent Act*;
  - are indefinite and unclear, contravening subsection 27(4) of the *Patent Act*; and
  - are overly broad, contrary to the requirements of the jurisprudence.

[11] We then address whether the proposed claims would constitute a necessary amendment under subsection 86(11) of the *Patent Rules*.

## LEGAL PRINCIPLES AND PATENT OFFICE PRACTICE

### Obviousness

[12] Section 28.3 of the *Patent Act* requires claimed subject matter to not be obvious:

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.

[13] In *Apotex v Sanofi-Synthelabo Canada*, 2008 SCC 61 at paragraph 67, the Supreme Court of Canada stated that it is useful in an obviousness inquiry to follow 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?

### Indefiniteness

[14] Subsection 27(4) of the *Patent Act* requires claims to distinctly and explicitly define subject matter:

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.

- [15] In *Minerals Separation North American Corp v Noranda Mines Ltd*, [1947] Ex CR 306 at 352, 12 CPR 99, the Court emphasized the obligation of an applicant to make clear in the 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.

### **Overbreadth**

- [16] Claims must not be overly broad. As stated in *Farbwerke Hoechst AG vormalis Meister Lucius & Bruning v Canada (Commissioner of Patents)* (1965), [1966] Ex CR 91, 50 CPR 222 (Ex Ct) at paragraph 21:

There are two fundamental limitations on the extent of the monopoly which an inventor may validly claim. One is that it must not exceed the invention which he has made, the other is that it must not exceed the invention he has described in his specification.

- [17] The second limitation concerns a question of construction and is thus a matter of law: *AFD Petroleum Ltd v Frac Shack Inc*, 2018 FCA 140 at paragraph 49. That is to say, a claim is overly broad if its scope is wider than what the description discloses as the invention. See also *Amfac Foods Inc v Irving Pulp & Paper Ltd* (1986), 12 CPR (3d) 193 (FCA) at paragraphs 21 to 35.

## **ANALYSIS**

### **Obviousness**

- [18] The following references were cited in the FA and subsequently considered in the PR letter:

- D1 US 5615880 April 1, 1997 Booth et al.
- D2 US 5564698 October 15, 1996 Honey et al.

- [19] D1 (abstract; columns 3 to 4; figures 1 and 4) discloses an ice hockey puck scoring system permitting detection of the position of a puck, projected over an imaginary



plane parallel to the two vertical posts of the hockey net and perpendicular to the goal line. The puck contains a pickup means, enabling its detection by a series of sensors mounted to each of the vertical posts of the hockey net and facing each other.

- [20] D2 (abstract; columns 4 and 9 to 12) discloses a system for making hockey pucks more visible to television viewers that involves an electromagnetic transmitter in the puck and electromagnetic receivers or sensors for detecting it.

*Identify the notional person skilled in the art and the relevant common general knowledge*

- [21] In the PR letter, we identified the notional skilled person as a team of engineers, designers and other technologists who are capable of developing and designing goal tending nets for hockey.
- [22] We then identified the common general knowledge (CGK) as including knowledge of:

- electromagnetic theory;
- the use and design of micro-controllers, including their use to control various electrical inputs and outputs (e.g. sensors and transmitters) within a plethora of devices and systems in general for many different, yet specific, requirements;
- hockey goal nets; and
- hockey pucks.

- [23] The Applicant has not disputed the identification of the skilled person or the relevant CGK.

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

- [24] Independent claim 1 on file defines an ice hockey puck scoring system, and is provided below for convenience:

1. An Ice\_Hockey\_Puck\_Scoring\_System (IHPSS) permitting to detect the position, projected over an imaginary plane in parallel to the two vertical posts of the Hockey net and is perpendicular to the goal line of the Hockey net, of an object by means of electric flux densities [ $C/m^2$ ] produced by a set of cubic-conductors.

[25] As the FA and the PR letter stated, the invention is intended to more reliably detect when a puck crosses the goal line during a hockey game. The invention makes use of a hockey puck with embedded electrets and a hockey net with sensors in its posts. The sensors generate an electric field between the two posts above the goal line and can detect the insertion of the puck's electrets into the field (see e.g. pages 1 to 4 and figures 1, 2, 16A and 16B of the application). As noted in the PR letter, however, many of the claims on file do not recite all these details.

[26] Therefore, we characterized the inventive concept for the independent claim 1 on file in the same manner as it had been in the FA:

an ice hockey puck scoring system permitting detection of the position of an object, projected over an imaginary plane parallel to the two vertical posts of the hockey net and perpendicular to the goal line, by means of electric flux density ( $C/m^2$ ) produced by a set of cubic conductors.

[27] As we remarked in the PR letter, since claims 2 to 13 depend on claim 1, their inventive concepts must include at least the details of its inventive concept.

[28] The Applicant has not disputed these characterizations of the inventive concepts.

*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*

[29] We consider D1 to be the most relevant cited reference. As explained in the PR letter, however, D1 does not specify that the sensors work by producing electric flux density or that the pickup means comprises electrets, nor does it explicitly state that the sensors are cubic conductors located inside the vertical posts.

*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*

[30] As stated, there is no suggestion in D1 as to what the sensors and pickup means are, specifically, or how they work.

[31] D2 suggests a variety of detection means, but all involve the transmission of electromagnetic waves. There is no mention of receivers or sensors working by producing an electric field and monitoring the electric flux density to detect the puck.

[32] As we said in the PR letter, our view is that the differences between the system disclosed in D1 and the inventive concept for claim 1 would have required some degree of invention from the skilled person, even when D2 and the CGK are considered.

[33] Since the inventive concepts for claims 2 to 13 include at least the details of the inventive concept for claim 1, our view is that they too would be inventive.

#### *Conclusion on obviousness*

[34] We conclude that the subject matter of the claims on file would not have been obvious to the skilled person in view of D1, D2 and the CGK. Therefore, these claims do comply with paragraph 28.3(b) of the *Patent Act*.

#### **Indefiniteness**

[35] The FA had identified several instances of missing antecedents in claim 1 on file, as well as various language and grammatical defects in each of the dependent claims on file, which rendered them indefinite and unclear. In the PR letter, we disagreed on the matter of the missing antecedents—we considered the antecedence of “the two vertical posts”, “the Hockey net” and “the goal line” to be implied, given that the claim’s subject is an ice hockey puck scoring system—but agreed on the matter of the defects in the dependent claims.

[36] The PR letter also identified other defects:

- Claims 1, 2, 5, 6 and 10 refer to an “object” instead of a “puck,” but the preambles of these claims consistently identify the overall system as an “Ice\_Hockey\_Puck\_Scoring\_System”, conveying a much more specific meaning than does the word “object.” Using both expressions in the same claim introduces unnecessary ambiguity: it is unclear whether the scope is limited to involvement of “pucks” or extends to the involvement of any “object.”
- Claims 2, 4 to 6, 10, 12 and 13 include duplicate references to the claims upon which they depend, detracting from their clarity.
- Claim 4 states that it depends upon claims 1 and 3 but refers to “four sets of cubic-conductors Aji, Bji, Cji and Dji”, which appear only in claim 3.

[37] The Applicant did not dispute this characterization or reasoning and we adopt them again here. As a result, our view is that the claims on file are indefinite and unclear,

and that these claims accordingly do not comply with subsection 27(4) of the *Patent Act*.

### **Overbreadth**

- [38] As stated in the PR letter, the description explains that electrets are embedded in the hockey puck, and it is the insertion of these electrets into the electric field generated between the cubic conductors or sensors of the two hockey net posts that permits the puck's detection. Without the electrets, the puck cannot be detected by these sensors, and without the cubic conductors in the hockey net posts, the electric field enabling detection is not generated; the specification and drawings disclose no alternative means of detection.
- [39] Claims 1, 4, 6 and 8 to 12 on file do not refer to the electrets, claims 1 and 2 on file do not specify that the cubic conductors are inside the hockey net posts.
- [40] Since, as the PR letter explained, the subject matter of claims 1, 2, 4, 6 and 8 to 12 on file lack at least some part of the specific arrangement of electrets in the puck and cubic conductors in the hockey net, where the arrangement permits detection of the puck when it crosses the plane above the goal line, we considered claims 1, 2, 4, 6 and 8 to 12 on file to be broader than the invention made or disclosed.
- [41] The Applicant has not disputed this, and has instead proposed a claim set in which these details have been added. We therefore conclude claims 1, 2, 4, 6 and 8 to 12 on file to be broader than the invention made or disclosed.

### **Proposed claims**

- [42] As explained above, we are considering only the latest set of proposed claims here. Proposed claim 1 is similar to claim 1 on file except that it includes text originally appearing in claims 2 and 3 on file, and some of its language is more precise. It refers to a puck instead of an "object," it recites the electrets as being distributed within the puck and specifies the location of the cubic conductors within the vertical posts of the hockey net. As a result, our view is that proposed claim 1 avoids the above-identified defects of claim 1 on file and does not appear to introduce new defects.
- [43] Proposed claims 2 and 3 are directed to "[t]he four sets of metal cubic conductors  $A_{ji}$ ,  $B_{ji}$ ,  $C_{ji}$  and  $D_{ji}$  in claim 1", claim 4 begins with "[f]or each pair of metal cubic-conductor  $A_{ji}$  and metal cubic-conductor  $C_{ji}$  in claim 2", claims 5 and 6 begin with

“[w]hen the current source TL081 in claim 4 charges one metal cubic-conductor”, claim 7 begins with “[f]or all the metal cubic-conductors  $B_{ji}$  in claim 1” and claim 8 begins with “[f]or all the metal cubic-conductors  $D_{ji}$  in claim 1”. Since claim 1 is directed to the ice hockey puck scoring system, the preambles of these other claims leave them with unclear scope.

- [44] The lack of clarity is aggravated in claims 3 to 6 by further references to claims 1 to 3. Additionally, even aside from these issues, the overall wording of claims 5 and 6 lacks clarity to the extent that the public would be unable to discern “where it must not trespass” and “where it may safely go.” In our view, the redrafting required to clarify these claims would exceed what is appropriate at this stage of review.
- [45] At the hearing, we expressed our view then that although the proposed claims 2 to 8 did not appear to be allowable, it appeared that claim 1 could be acceptable, and that the wording issues of claims 2 to 4, 7 and 8 could be correctable, depending on the Applicant’s intentions for them. The Applicant confirmed that these claims were intended to be dependent claims, and indicated a willingness both to amend their preambles and to remove any superfluous references to preceding claims, where doing so would make a claim acceptable.
- [46] With this in mind, our view is that proposed claims 2 to 4, 7 and 8 would be clear if their preambles appropriately communicated their dependency and if superfluous references to other claims were removed.
- [47] Accordingly, our view is that the following claim set (the modified claims), based on the proposed claims and the changes discussed during the hearing, would be acceptable. Note that claim 1 is the same as proposed, claims 5 and 6 have been removed from the proposed set and the remainder have been renumbered as needed.

Claim 1. An Ice\_Hockey\_Puck\_Scoring\_System (IHPSS) permitting to detect the position, projected over an imaginary plane in parallel to the two vertical posts of the Hockey net and is perpendicular to the goal line of the Hockey net, of a puck by means of electric flux densities [ $C/m^2$ ] produced by a set of metal cubic-conductors  $A_{ji}$ ,  $B_{ji}$ ,  $C_{ji}$  and  $D_{ji}$ ;

the said cubic-conductors  $A_{ji}$  and  $B_{ji}$  are located inside one vertical post of the Hockey net; and the said cubic-conductors  $C_{ji}$  and  $D_{ji}$  are located inside of the other vertical post of the Hockey net;

for  $i$  and  $j$  are along x and y axis and  $i=1,2,\dots,I$  and  $j=1,2,\dots,J$ , I and J in odd integers;

the coordinate of orthogonal axis with the origin where z axis is along the goal line and  $z=0$  is in the middle of the goal line, and x axis is perpendicularly upward to the ice surface, and the positive y axis points to the opposite team Hockey net;

the said puck has electrets that are distributed arbitrarily inside the puck.

Claim 2. The system of claim 1, where each cubic-conductor is of type full or hollow metal;

where hollow metal means the cubic-conductor has an inner and outer perimeter forming a thickness layer; and the full metal means the cubic-conductor has the inner perimeter of zero value; and

where each said metal cubic-conductor is electrically charged [Coulomb] to provide surface capacitance [Farad] viewed to its neighbouring metal cubic-conductors.

Claim 3. The system of claim 1, where one metal shield surrounds the metal cubic-conductors  $C_{ji}$  and  $D_{ji}$  and another metal shield surrounds the metal cubic-conductors  $A_{ji}$  and  $B_{ji}$  where said two metal shields are having the same equipotential surface by being connected to each other by a metal wire and allowing electrostatic electric flux densities [ $C/m^2$ ] pointing from metal cubic-conductors  $C_{ji}$  to metal cubic-conductors  $A_{ji}$  in the z-direction along the Hockey goal line;

where the said puck with embedded electrets in claim 1 is travelling to intersect with said electric flux densities [ $C/m^2$ ].

Claim 4. The system of claim 3, where for each pair of metal cubic-conductor  $A_{ji}$  and metal cubic-conductor  $C_{ji}$ ,

for each integer value of  $j$  and  $i$ ,

where coulomb charges are transferred from metal cubic-conductor  $A_{ji}$  to metal cubic-conductor  $C_{ji}$  by one current source where two coaxial cables are used to connect the cathode and anode terminals of said current source to the metal cubic-

conductor  $A_{ji}$  and to the metal cubic-conductor  $C_{ji}$  where the metal shield layer of each of the said coaxial cables has the same equipotential surface, by wire connections, with the two metal shields that surround the metal cubic-conductors  $A_{ji}$ ,  $B_{ji}$ ,  $C_{ji}$  and  $D_{ji}$ ; and

the said current source is of type TL081.

Claim 5. The system of claim 1, where for all the metal cubic-conductors  $B_{ji}$ ,

where all the negative charged cubic-conductors are transferring the Coulomb charges to all the positive charged cubic-conductors by the use of one current source of type TL081;

the capacitance viewed of  $B_{ji}$  to  $A_{ji}$  allows to increase the capacity in farad from each  $A_{ji}$  to  $C_{ji}$  and to set quiescent voltages from  $A_{ji}$  to  $C_{ji}$ .

Claim 6. The system of claim 1, where for all the metal cubic-conductors  $D_{ji}$ ,

where all the negative charged cubic-conductors are transferring the Coulomb charges to all the positive charged cubic-conductors by the use of one current source of type TL081;

the capacitance viewed of  $D_{ji}$  to  $C_{ji}$  allows to increase the capacity in farad from each  $A_{ji}$  to  $C_{ji}$  and to set quiescent voltages from  $A_{ji}$  to  $C_{ji}$ .

[48] In our view, the above modified claims would constitute a necessary amendment under subsection 86(11) 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 86(11) of the *Patent Rules*, that the deletion of the claims on file and the insertion of the new claim set identified above as the modified claims are necessary for compliance with the *Patent Act* and *Patent Rules*.

Leigh Matheson  
Member

Andrew O'Malley  
Member

Cara Weir  
Member

## DECISION OF THE COMMISSIONER

[50] I concur with the findings of the Board and its recommendation.

[51] Accordingly, under subsection 86(11) of the *Patent Rules*, I notify the Applicant that the above amendment must be made within three months of the date of this decision, failing which I will refuse to grant a patent for this application.

[52] In accordance with subsection 200(b) of the *Patent Rules*, this is the only following amendment that may be made to the application:

- delete claims 1 to 13 on file; and
- insert the modified claims (claims 1 to 6 identified above in paragraph 47 as the “modified claims”).

Johanne Bélisle  
Commissioner of Patents

Dated at Gatineau, Quebec,  
this 15<sup>th</sup> day of January, 2020