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Commissioner's Decision #1631
Décision du commissaire n°1631
Date: 2022-11-30

TOPIC: O-00 Obviousness

SUJET: O-00 Évidence

Application No. 2887031
Demande n° 2 887 031

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 2887031, having been rejected under subsection 86(3) of the *Patent Rules* (SOR/2019–251), has subsequently been reviewed in accordance with paragraph 86(7)(c) of the *Patent Rules*. The recommendation of the Patent Appeal 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 patent application number 2887031, which is entitled “Sonar Mapping System” and is owned by Johnson Outdoors, Inc. The outstanding defect indicated by the Final Action (FA) is obviousness. The Patent Appeal Board (the Board) has reviewed the rejected application pursuant to paragraph 86(7)(c) of the *Patent Rules* (SOR/2019–251). As explained below, we recommend refusal of the application.

BACKGROUND

The application

- [2] Canadian patent application 2887031 was filed on April 2, 2015 and has been open to public inspection since October 3, 2015.
- [3] The invention concerns a watercraft-mounted sonar mapping system for anglers.

Prosecution history

- [4] On October 13, 2020, an FA was issued pursuant to subsection 86(5) of the *Patent Rules*. The FA indicated the application to be defective on the ground that claims 1 to 18 (the claims on file) are directed to obvious subject matter, contrary to section 28.3 of the *Patent Act*.
- [5] In its December 11, 2020 response to the FA (RFA), the Applicant proposed an amended set of 38 claims (the first proposed claims), consisting of 20 new claims in addition to the claims on file, and submitted arguments for allowance.
- [6] The Examiner was unpersuaded by the arguments that either the claims on file or the first proposed claims complied with section 28.3 of the *Patent Act*. Therefore, pursuant to paragraph 86(7)(c) of the *Patent Rules*, the application was forwarded to the Board for review on behalf of the Commissioner of Patents. On August 3, 2021, the Board forwarded to the Applicant a copy of the Examiner’s Summary of Reasons along with a letter acknowledging the rejection.
- [7] A Panel was assigned to review the rejected application and make a recommendation to the Commissioner as to its disposition. Following a preliminary review, a letter (the PR letter) was sent on September 21, 2022. This letter explained why, based on the record before us, we considered the claims on file to define obvious subject matter, contravening section 28.3 of the *Patent Act*. It also identified a likely typographical error in the claims on file and the first

proposed claims, and explained why we considered the first proposed claims to also define obvious subject matter. The PR letter further invited the Applicant to make submissions in response to the letter, and to indicate if they wanted a hearing.

- [8] The Applicant's response (RPR) was received on October 19, 2022. It indicated that they did not want a hearing, proposed a new set of amended claims (the second proposed claims) and provided arguments for the patentability of the claims on file and the second proposed claims.

THE ISSUE IS OBVIOUSNESS

- [9] This review first addresses the issue of whether the claims on file define obvious subject matter, thus contravening section 28.3 of the *Patent Act*. Next, this review addresses the typographical error. Finally, the review addresses whether the second proposed claims would constitute a necessary amendment under subsection 86(11) of the *Patent Rules*.

THE CLAIMED INVENTION IS OBVIOUS

- [10] 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 before the one-year period immediately preceding the filing date or, if the claim date is before that period, before the claim 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.

- [11] In *Apotex Inc v Sanofi–Synthelabo Canada Inc*, 2008 SCC 61 at para 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?

[12] The following documents are considered relevant to the determination of the common general knowledge (CGK) or of obviousness:

- D1: “WASSP goes wireless with new remote mapping system,” *Press Release from WASSP Ltd.* (Auckland, NZ: WASSP Ltd., January 14, 2014), online: WASSP Goes Wireless With New Remote Mapping System <<https://www.marinelink.com/news/wireless-mapping-remote362959>>.
- D2: Nick Fogarty, “Wassp wireless” (Auckland, NZ: WASSP Ltd., December 22, 2013), online: Wassp Wireless – YouTube <<https://www.youtube.com/watch?v=J6CTyIHzuFE>>
- D3: Tristan Poulain, “Humminbird 360 imaging” (February 23, 2012), online: Humminbird 360 Imaging – YouTube <<https://www.youtube.com/watch?v=bsOGUx7O3nk>>.
- D5: “Humminbird 360 imaging” (August 6, 2013), online: humminbird 360 Imaging <<https://www.youtube.com/watch?v=xUArwPGww18>>.
- D6: Hans Werner Schenke, “Interpolation and contouring of sparse sounding data,” *Presentation to the General Bathymetric Chart of the Oceans Centenary Conference Held April 2003 in Monaco* (GEBCO), online: Presentations and Publications <https://www.gebco.net/about_us/presentations_and_publications/documents/centenary_conf_schenke.pdf>.

- D7: “WASSP Multibeam Water Column and Seafloor Sonar Navigator,” *WSP-009-003*, version 1.4 (Auckland, NZ: WASSP Ltd., June 27, 2012), archived online: Download the operational manuals for WASSP and WASSP Navigator <https://web.archive.org/web/20131127064948/http://wassp.com/userfiles/file/WS-P-009-003%20V1_4_High_Res.pdf>.
- D8: US 2013/0215719 A1 August 22, 2013 Betts et al.

[13] D1 to D3, D5 and D6 were cited in the FA to support the reasoning concerning obviousness or the CGK. D7 and D8 (itself referenced in the present application as an example of the prior art) arose during our preliminary review and were cited in the PR letter.

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

[14] In the PR letter, we preliminarily characterized the skilled person as:

a team comprising technologists experienced with the development and application of watercraft-mounted sonar systems, especially for anglers.

[15] Based on this definition of the skilled person, we preliminarily identified the relevant CGK as including:

- watercraft-mounted sonar transducer assemblies and their conventional configurations, functionalities and applications, including:
 - how to install a sonar transducer assembly, mount it on a watercraft and connect it to any supporting systems;
 - using an assembly for fish finding; and
 - using an assembly to provide 360-degree sonar imaging;
- the design and implementation of computer systems conventionally supporting the use of watercraft-mounted sonar systems, including:
 - means for storing, processing and displaying data;
 - means and methods for connecting portable devices;
 - means for displaying two-dimensional or three-dimensional topographical data using contours and colours; and

- means for receiving and using GPS data;
- the usefulness of detailed topographical maps or charts of water bodies to fishermen; and
- the use of interpolation functions to estimate lacking adjacent topographical information.

[16] As remarked in the PR letter, this characterization was also based on:

what the present description (paragraphs 3 and 4) and D8 (paragraphs 3 to 6) describe as generally known or conventionally done in the field. It is also supported by common examples of functions among D1, D2, D3, D5 and D7, by the descriptions and drawings of D8 (itself referenced by the present application as disclosing an existing system) and by the example of D6.

[17] The Applicant did not dispute the identification of the skilled person or the consequent identification of their CGK. Accordingly, we adopt the above definitions of these concepts here.

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

[18] The application (paragraphs 2 to 7 and 36 to 40) explains that it is useful for anglers to have detailed topographical maps or charts, and thus proposes to improve watercraft-mounted sonar transducer systems to address this need. The application proposes a sonar mapping system capable of generating and updating a topographical chart or map in real time, for display or storage.

[19] The independent claims 1 and 16 on file are directed to sonar mapping systems:

Claim 1. A sonar mapping system comprising:

- a sonar transducer assembly configured for mounting on a watercraft;
- a display configured to show a topographical chart of a body of water;
- a processor coupled to the sonar transducer assembly and display, and configured to create the topographical chart in real time, or to update the topographical chart in real time, based on sonar data provided by the sonar transducer assembly, the processor being configured to render the created or updated topographical chart on the display; and

memory accessible by the processor and configured to store the topographical chart rendered by the processor, and to store the sonar data provided by the sonar transducer assembly.

Claim 16. A sonar mapping system comprising:

a sonar transducer assembly configured for mounting on a watercraft, and configured to provide sonar data for a 360-degree area surrounding the watercraft;

a display configured to show underwater images based on data from the sonar transducer assembly;

a processor coupled to the sonar transducer assembly and to the display, the processor configured to convert sonar data from the sonar transducer assembly into the underwater images rendered on the display, wherein the processor is also configured to overlay the underwater images, in real time, onto a previously-stored chart for a body of water, or to create a new chart, in real time, that includes the underwater images[;]

memory accessible by the processor, wherein the processor is configured to store, in the memory, the new chart with underwater images or the previously-stored chart with overlaid underwater images.

[20] In the PR letter, we took the wording of claims 1 and 16 as their inventive concepts. The Applicant did not object to this approach, and we adopt it here as well.

[21] Dependent claim 2 on file additionally describes the estimation of missing adjacent topographical data. Dependent claims 3 to 7, 9 to 12, 17 and 18 on file recite further details regarding the look and significance of the displayed data. Dependent claims 8 and 13 to 15 on file recite further details regarding the operations and structure of the involved sonar system. These details are considered to be parts of the inventive concepts for their respective claims.

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

- [22] As remarked in the PR letter, we consider D7 to be the most relevant reference. D7 (pages 4 to 6, 11, 13, 22 to 27 and 33) describes the operation of the WASSP Multibeam Navigator software product. This manual’s description indicates that the software is part of a system including a watercraft-mounted sonar transducer assembly, and which is capable of using its generated sonar data in real time to provide underwater images, and to create or update charts.
- [23] The PR letter explained that there is no significant difference between the disclosure of D7 and the inventive concepts of claims 1, 8 and 14 on file. D7 (pages 4, 9, 11, 16, 17, 26, 27 and 29) indicates that the system’s display can show topographical charts of the area of interest. The sonar data generated by the system can be used to create or update topographical charts for display. The chart and the sonar data can be stored.
- [24] The Applicant disagreed, submitting in the RPR that the system of D7 requires two separate computer systems, one in a tender and dedicated to collecting sonar data, the other on the mothership and dedicated to navigation and rendering maps:

As discussed in the Applicant’s Response to the Final Action, the [WASSP] system involves a tender and a mothership, wherein the tender surveys a route with its sonar transducers and sends the sonar data (not any map) back to the mothership which includes navigation computers. The mothership takes the sonar data received from the tender and runs it through a navigation system to render a topographical map and navigate appropriately. Such a system cannot operate otherwise than as a split system because each vessel has a particular purpose, namely: the tender to survey and send that sonar data to the mothership, and the mothership to process that sonar data through its navigation system to render the map to allow proper navigation of the mothership.

...

The WASSP system collects sonar data via one system on the tender, and transmits the sonar data to another system on the mothership that uses a computer to generate a topographic map. As such, even if, *arguendo*, a skilled

person seeking to provide a fish finder system would follow the teaching of D7, such skilled person would at best be led to provide a first processor at a first location to collect and transmit sonar data, and a second, different processor at a second location to generate or update the topographical map.

In sharp contrast, the claimed system uses a fish finder head unit both to control the sonar transducers and generate or update the topographical map in real time while maneuvering on the lake. No dedicated map generating computer with a separate mapping program running thereon is needed.

- [25] To begin with, D7 does not suggest that the WASSP Multibeam system involves a mothership/tender arrangement. D7 (pages 5, 6, 14, 15, 27, 28 and 32) shows the system to involve only one boat, like the present invention. D7 (pages 26 and 33) does not refer to the navigation of super yachts, but it does suggest finding fish as an application, like the present invention.
- [26] It is noted that the mothership/tender arrangement and the application of WASSP to super-yacht navigation referenced by the RPR are described in D1. The “WASSP–Wireless” system there, however, was developed as a further application for the already commercially available WASSP Multibeam system (and its Navigator software). This is clear from the description and context provided by D1, and also from the relative publication dates of D1 and D7.
- [27] Further, the inventive concepts of claims 1, 8 and 14 on file each involve a processor coupled to the sonar transducer array and to the display, as does the system outlined in D7.
- [28] The PR letter also discussed the remaining claims on file.
- [29] Regarding independent claim 16 on file, D7 (pages 4, 11, 15, 16, 22, 26 and 29) discloses that underwater images generated from the sonar data can overlay onto chart information. D7 does not explicitly disclose that sonar data is provided for a 360-degree area surrounding the watercraft, however.
- [30] Regarding dependent claim 2 on file, D7 does not discuss the estimation of missing topographical data.
- [31] Regarding dependent claims 3 to 7, 9 to 12, 17 and 18 on file, D7 (pages 11, 15, 22 to 26 and 31 to 33) discloses these various forms of information depiction.

- [32] Regarding dependent claims 13 and 15 on file, D7 does not explicitly discuss the use of portable memory devices or the integration of the processor in the sonar transducer assembly.
- [33] D8 (abstract; paragraphs 6 to 11, 14, 20, 23, 68, 69, 72, 77, 79, 131 and 132; figures 2, 12 and 29) discloses a sonar system comprising a sonar transducer assembly for mounting on the watercraft and providing sonar data for a 360-degree area. The system uses the sonar data to provide underwater images in real time for display; sonar data can also be stored for later processing and use. D8 (paragraphs 28, 113 and 131; figures 12, 29 and 30) also discloses the use of colours, contour lines and other forms of depiction.
- [34] Although D8 discloses that the underwater images can be displayed simultaneously with previously-stored chart data, they are displayed side-by-side. D8 does not disclose that the images are overlaid with the chart data, or used to generate or update charts.

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?

- [35] As remarked, we are unable to identify any significant differences between D7 and the inventive concepts of claims 1, 3 to 12 and 14 on file. It follows that these claims would have been at least obvious to the skilled person.
- [36] Regarding claims 16 to 18 on file, it would have been obvious that the approach to mapping, and real-time processing and use of sonar data, in D7 would also work well when that sonar data covered a 360-degree area. As noted, it is well known to generate sonar data for such an area. D8 also discloses an example.
- [37] Regarding claim 2 on file, the PR letter noted that it is well known to use interpolation techniques to estimate missing portions of adjacent topographical data. This is also borne out by the fact that the present description (e.g. paragraphs 7 and 43) simply refers to the estimation or interpolation, without suggesting any of the involved steps or means.
- [38] In the RPR, the Applicant submitted that D7 would not have led the skilled person to adopt such a technique:

Specifically, and as previously submitted and discussed above, D7 mainly concerns the use of a tender sailing in advance of a superyacht, to generate and transmit sonar data to a system on the superyacht for the purpose of generating a topographic map, in order to enable safe navigation of the superyacht. A skilled person following the teaching of D7 would not have been led to generate and rely on estimated and interpolated topographical data for this purpose, as to do so would risk the multimillion dollar superyacht by filling in topographical information where the tender had not traveled. The entire purpose of the system of D7 is to ensure safe passage by having the tender scan the route for any changes that may have occurred since the underlying navigational chart was made, or to make such a navigational chart where one did not exist.

- [39] As explained above, D7 does not involve mothership/tender arrangements or the navigation of super yachts. In any case, the issues inherent in digitally modelling a continuous surface (such as the bed of a body of water) from a limited sample set of sonar data have been faced before. They have been faced in different applications of the modelling—including the generation of nautical maps. It would be logical to the skilled person to take advantage of commonly known techniques for addressing such issues to fill in the gaps in the data.
- [40] Regarding claims 13 and 15 on file, the PR letter remarked that it is well known to use portable memory devices with computerized systems, and to integrate processors with sonar transducer assemblies.
- [41] The RPR pointed out that the processor defined by claim 15 as being integrated into the sonar transducer assembly is configured to create and update the topographical chart in real time and render the chart for display. The Applicant submitted that the prior art and CGK would not have motivated the skilled person to make such an arrangement.
- [42] We consider the placement of the control processor within the sonar imaging system to be a design choice open to the skilled person, given their CGK. The system is achieving the same overall function of using the sonar data to produce and update maps either way. No unexpected result appears to be attained. The description (paragraph 27) suggests that integrating the control processor within the sonar transducer assembly permits the unit to be readily installed in different types of watercraft, but this would be an expected result of placing needed

components within a contained unit. There appears to be no difficulty in placing the control processor here—the lack of implementation detail in the description and drawings suggests the implementation to be within the capability of the skilled person. The allocation of functions to a microprocessor in the sonar transducer assembly to reduce the functional requirements for the rest of the watercraft's equipment is also exhibited by an embodiment disclosed in D8 (paragraph 72).

Conclusion on obviousness

- [43] We consider that the subject matter of claims 1 to 14 on file would have been obvious to the skilled person in view of D7 and the CGK. The subject matter of claims 15 to 18 on file would have been obvious to the skilled person in view of the combination of D7, D8 and the CGK. Therefore, claims 1 to 18 on file do not comply with section 28.3 of the *Patent Act*.

THERE IS A TYPOGRAPHICAL ERROR IN CLAIM 16

- [44] A semi-colon is missing from the end of the second last paragraph of claim 16 on file.

THE PROPOSED CLAIMS DO NOT REMEDY THE DEFECTS

- [45] As stated above, the Applicant submitted the second proposed claims with the RPR. The second proposed claims consist of 56 claims. Independent claims 1 and 19 are directed to sonar mapping systems, independent claim 26 is directed to a head unit, and independent claims 39 and 52 are directed to methods.
- [46] Second proposed claims 1 to 15 and 19 to 21 are the same as claims 1 to 18 on file but for the additional text: "wherein the processor is a single processor or multiple co-located processors." Second proposed claims 16 to 18 and 22 to 25 specify whether it is a single processor or where it is. Second proposed claims 26 to 56 are directed to similar subject matter as the other second proposed claims but additionally involve receiving and using location information from a GPS receiver.
- [47] The proposed amendments would resolve the typographical error but not the obviousness defect.
- [48] The text added to second proposed claims 1 to 15 and 19 to 21 does not distinguish the "processor" over the processors of the systems in any of the cited

prior art or CGK. These claims are thus obvious for the same reasons as claims 1 to 18 on file.

- [49] Second proposed claims 16 and 23 require the processor to be integrated into a control head. Second proposed claims 17 and 24 specify that the processor is “a single processor.” Since both D7 (pages 6 to 7) and D8 (paragraphs 72, 77 and 80; figure 2) disclose sonar mapping or sonar imaging systems including a head unit with a processor (e.g. a personal computer for the user to interface with and operate the system), these second proposed claims do not further distinguish over the cited prior art. They are thus obvious for the same reasons as the claims on file.
- [50] Second proposed claims 18 and 25 specify that the processor is “multiple co-located processors.” Whether or not to employ multiple processors in a computerized system is a design choice open to the skilled person. Nor do the description and drawings suggest that implementation is beyond the CGK of the skilled person, or that any unexpected results are attained. The application (paragraph 27) says little on the use of co-located processors.
- [51] Second proposed claim 22 requires the processor to be integrated into the sonar transducer assembly. As explained above regarding claim 15 on file, this detail would not have required any degree of inventive ingenuity, once D8 and the CGK were also considered.
- [52] Regarding second proposed claims 26 to 56, such use of GPS technology is part of the CGK. D7 (page 27) and D8 (e.g. paragraphs 14, 20, 27, 29, 30, 101, 131 and 132) also disclose examples.
- [53] Accordingly, the second proposed claims 1 to 56 would have been obvious. It follows that the second proposed claims are not considered a necessary amendment under subsection 86(11) of the *Patent Rules*.

RECOMMENDATION OF THE BOARD

- [54] In view of the above, we recommend that the application be refused on the basis that claims 1 to 18 on file define obvious subject matter, contravening section 28.3 of the *Patent Act*.

Leigh Matheson

Member

Liang Ji

Member

Vincent Pellerin

Member

DECISION OF THE COMMISSIONER

- [55] I agree with the Board's findings and its recommendation to refuse the application on the basis that the claims on file define obvious subject matter, contravening section 28.3 of the *Patent Act*.
- [56] Therefore, in accordance with section 40 of the *Patent Act*, I refuse to grant a patent for this application. Under section 41 of the *Patent Act*, the Applicant has six months to appeal my decision to the Federal Court of Canada.

Konstantinos Georgaras

Commissioner of Patents

Dated at Gatineau, Quebec
this 30th day of November, 2022