Federal Court of Appeal | Cour d'appel fédérale

Date: 20250729

Dockets: A-291-24
A-16-25

Citation: 2025 FCA 134

CORAM: **RENNIE J.A.**
LASKIN J.A.
GOYETTE J.A.

BETWEEN:

Docket: A-291-24

AGI SURETRACK, LLC

Appellant

and

FARMERS EDGE INC.

Respondent

Docket: A-16-25

AND BETWEEN:

AGI SURETRACK, LLC

Appellant

and

FARMERS EDGE INC.

Respondent

Heard at Vancouver, British Columbia, on April 9, 2025.

Judgment delivered at Ottawa, Ontario, on July 29, 2025.

PUBLIC REASONS FOR JUDGMENT BY: RENNIE J.A.

CONCURRED IN BY: LASKIN J.A.
GOYETTE J.A.

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PUBLIC REASONS FOR JUDGMENT

This is a public version of confidential reasons for judgment issued to the parties. The two are identical, there being no confidential information disclosed in the confidential reasons.

RENNIE J.A.

I. Overview

[1] The Federal Court (FC) dismissed an action by AGI Suretrack, LLC (AGI, the appellant) claiming that Farmers Edge Inc. (FEI, the respondent) infringed its Canadian Patent No. 2,888,742 (the ‘742 Patent). The FC judge also granted FEI’s counterclaim, finding the ‘742 Patent invalid and declaring all of its 44 claims either obvious or anticipated (*AGI Suretrack, LLC v. Farmers Edge Inc.*, 2024 FC 934, *per* McHaffie J. [FC Decision]). AGI appeals that decision, along with the associated decision on costs (2024 FC 1887), to this Court.

[2] At the outset, I recognize that this case is particularly complicated. The ‘742 Patent’s subject matter is highly technical, and the litigation history between the parties extends over nearly a decade, involving numerous proceedings in Canadian and American courts. In 537 paragraphs, the FC Decision comprehensively navigates this context, reflecting the parties’ manifold arguments and the immense volume of evidence, which included 13 expert reports.

[3] On a high level, and contrary to the picture painted by the appellant, the ‘742 Patent is all about harnessing the immense value of farming data. The claimed invention describes a device for automatically recording data that is already being generated by the use of an implement, such as a seeder. The device can supplement that data with location and time information, recording, for example, exactly when and where a seed was planted. It can do this for multiple implements: sprayers, fertilizers, harvesters, etc. Then, it can reliably and wirelessly transmit this data to the invention’s claimed systems for processing, display, and sharing with stakeholders.

[4] This collection of detailed, multifaceted farming data is of immense value to stakeholders, and can inform decision-making. It can be used to make maps that show a farmer how much land was tilled, which informs the decision of how much seed to buy and plant. Governments can use these maps to see where farming operations are being carried out, as the land actually used by farming businesses may differ from the land designated in official government records (that is, parts of the land may become unfarmable swamp, hills may be nonarable, etc.). Industry groups also benefit from the data generated by the invention; for example, seed manufacturers can directly attribute harvest output to individual seeds.

[5] The ‘742 Patent is not, as the appellant argued at length before us, “a solution to [the] long-standing problem of interoperability” (Appellant’s Memorandum of Fact and Law, at para. 2 [AMFL]). In fact, it is telling that the word “interoperability” does not appear anywhere in the ‘742 Patent’s claims or disclosure.

[6] The main thrust of the appellant’s argument is that the FC judge erred by not construing the terms “manufacturer code” and “device class” purposively, and by failing to consider whether certain elements were not essential. These errors, it says, were instrumental in the FC’s conclusions that the asserted claims were anticipated or obvious, and that the ‘742 Patent was not infringed. All 44 claims are at issue in this appeal.

[7] The appellate standards of review are applicable to this appeal: questions of law are reviewed on a standard of correctness and questions of fact or mixed fact and law, from which

there is no extricable question of law, are not reversed absent a palpable and overriding error (*Housen v. Nikolaisen*, 2002 SCC 33).

[8] Claims construction is a question of law, but the trial judge is entitled to deference regarding their assignment of weight to expert evidence of how the person of ordinary skill in the art, often referred to as the skilled person, would understand certain terms in the patent; this Court will not intervene with such findings absent a palpable and overriding error (*Canamould Extrusions Ltd. v. Driangle Inc.*, 2004 FCA 63, at para. 3 [*Canamould*], citing *Whirlpool Corp. v. Camco Inc.*, 2000 SCC 67, at para. 61 [*Whirlpool*]; *Biogen Canada Inc. v. Pharmascience Inc.*, 2022 FCA 143, at para. 38 [*Biogen*]). Infringement, anticipation, and obviousness are questions of fact or mixed fact and law (*Wenzel Downhole Tools Ltd. v. National-Oilwell Canada Ltd.*, 2012 FCA 333, at para. 44 [*Wenzel Downhole*]).

[9] For the reasons that follow, I would dismiss the appeals.

II. The ‘742 Patent

[10] The ‘742 Patent, entitled “Farming Data Collection and Exchange System,” was filed September 23, 2013, and published March 26, 2015. It has 3 independent claims (1, 20, and 38), and provides for a device (claims 1-19) and systems (claims 20-44) for data collection, management, and use in the field of precision agriculture (Patent, Technical Field, at 1 lines 4-6).

[11] Precision agriculture involves collecting and using detailed agronomic data generated during the operation of farming implements to facilitate stakeholder decision-making.

Agronomic data collected in the field can be transmitted to farming data exchange systems for processing, storage, and use, for example, to create maps that visualize the data.

[12] Broadly speaking, there are two complementary pieces to the claimed invention. Firstly, claim 1 and its dependent claims are directed at a device (Relay Device) that collects agronomic data by recording the operation of farming implements in real-time (Patent, at 40 lines 2, 4-6). The farming implement is connected to, and communicates with, a farming vehicle, such as a tractor, via a message bus (e.g. ISOBUS). The Relay Device is connected to the message bus using a bus connector and "listens" for useful messages being transmitted from the implement to the vehicle; when such messages are detected, they are copied to the Relay Device's memory and tagged with a location obtained from a global positioning system and timestamp (Patent, at 4 lines 23-29; at 40 lines 21-23; at 41 lines 4-5). The Relay Device then wirelessly transmits the data to the associated farming data exchange systems for storage, processing, and use (Parent, at 43 lines 1-2, 6-7, 11-12).

[13] Secondly, claims 20 and 38, and their dependent claims, are directed to the farming data exchange systems that can be implemented with software integrated over servers, computers, and mobile phones to receive, process, display, share, and store data received from the Relay Device; the software has various functionalities, including generating reports and determining "travel paths" for implements used. These "travel paths" are used to determine where farming operations actually occurred; they will show where an implement travelled but was not in use (for example, a row on a seeder was turned off) versus where an implement travelled and was in use, and may be different from official government-designated land plots. In claim 20, the Relay Device data

is received by a “network interface” (Patent, at 48 lines 1-2), and in claim 38 it is received by a “farm traffic controller” (Patent, at 55 lines 4-8). In both instances, the data includes position, time, and message data from sensors or electronic control units (ECUs) on the implement used (see e.g. for claim 20, Patent, at 48 lines 10-16).

[14] Claims 1, 20, and 38 also refer to a microprocessor that stores the electronic farming record, information about a farming operation land segment, and an “implement profile”, stored in the memory storage area, containing “a known manufacturer code, a known device class, a known version, and a known communication protocol” for a specific farming implement (see e.g. for claim 1, Patent at 40 lines 10-14).

III. Decision of the Federal Court

[15] On March 27, 2017, AGI, then Farmobile, LLC, filed a statement of claim against FEI alleging that FEI’s CanPlug device and its farming data exchange system, FarmCommand, infringe the ‘742 Patent. The claims that AGI asserts are infringed have changed over time as FEI updated its products to design around the alleged infringements. Specifically, AGI asserted that before April 2021, FarmCommand infringed claims 20, 26-27, 31-39, and 41-44; after April 2021, CanPlug infringed claims 1, 3-4, 9, 13, and 17-19; and, after FEI’s July 2021, February 2022, and April 2022 software updates, CanPlug no longer infringed claim 9. Generally, these updates involved moving some processing from CanPlug, which previously performed all processing, to servers, creating a split architecture system, and disabling a software component called “Vanessa”.

[16] The parties' main experts were Mr. Ault for FEI and Dr. Edwards for AGI. Overall, McHaffie J. described both experts' evidence as helpful. However, he noted that Dr. Edwards did not address essentiality in either his first or second report, where he construed the patent claims, along with a number of key inconsistencies in his evidence (FC Decision, at paras. 19-20, 44).

[17] At trial, AGI claimed that CanPlug and FarmCommand infringed all 44 claims of the '742 Patent. In defence, FEI asserted non-infringement, arguing that even if its products did infringe at some point, its software updates resulted in non-infringing alternatives, and that, regardless, the claims asserted were invalid on a number of grounds. FEI also initially advanced a claim for a declaration of ownership of the '742 Patent, but abandoned this argument.

[18] The FC held that there was no infringement of the '742 Patent and declared all of its 44 claims invalid as either obvious or anticipated. McHaffie J. concluded that the CanPlug and FarmCommand, FEI's impugned relay device and farming data exchange systems, respectively, did not infringe the '742 Patent as they never included an implement profile containing a "manufacturer code" or "device class" within the meaning of the ISO 11783 (ISO) networking standard, an essential element of all three independent claims of the '742 Patent as construed by the FC (FC Decision, at paras. 5-6).

[19] The FC found claims 2, 5-6, 14, 16, 20-44 obvious considering the prior art and common general knowledge (CGK) of the skilled person, with no inventive differences over the state of the art (FC Decision, at para. 9). On anticipation, the Court held that the 2630 GreenStar 3 display [GreenStar 3], a device manufactured and sold by Deere & Company, disclosed and

enabled the essential elements, thereby anticipating the remaining claims relating to the Relay Device: claims 1, 3-4, 7-13, 15, 17-19 (FC Decision, at para. 459).

IV. Claims Construction

[20] The claim terms at issue in this appeal are in respect of “a known manufacturer code” and “a known device class.” However, there is no dispute over the meaning of the word “known”, which was construed by the FC as “known by the system or device described in the claim” (FC Decision, at para. 112). The crux of this appeal is the construction of the terms “manufacturer code” and “device class”, and the essentiality of two elements: the foregoing terms and the location of the microprocessor in claim 1. The Court’s determination on construction has implications for the obviousness and anticipation analyses, and the parties agree it is dispositive of the infringement issue (FC Decision, at para. 6).

[21] I begin by summarizing the CGK of the skilled person, as determined by the FC, given its relevance to the following claims construction exercise and, later, the analysis of obviousness and anticipation.

[22] McHaffie J. described the skilled person as not simply a software engineer who happens to work in precision agriculture, but someone with a software engineering background and more than a working knowledge of precision agriculture concepts. The disclosure of the ‘742 Patent specifically positions the invention within the field of agriculture, outlining the state of the art relating to precision farming and computer systems on farming implements (FC Decision, at paras. 53-55; Patent, at 1-3).

[23] The parties agreed, and McHaffie J. accepted, that the CGK would include the ISO standard, which defines communication protocols for agricultural equipment and provides for the specification of message format and content (FC Decision, at paras. 71-72). ISO uses a type of message bus called the ISOBUS, which enables communication between compatible implements and other hardware or software components to transmit messages about farming operations. It is used with modern farming equipment. ISO is based on a prior standard for heavy machinery called SAE J1939, which used a message bus called the "CAN bus".

[24] The CGK would also include the knowledge that ISO sought to enhance the interoperability of farming machinery by facilitating the use of equipment from different manufacturers (FC Decision, at paras. 63-68). To give effect to this goal, ISO provides for several types of messages, including fully standardized and proprietary messages. Open, standardized message data is identified with "parameter group numbers" (PGNs): numbers listed in the ISO manual annexes. For example, manufacturer code PGNs are listed in Annex G (e.g. 12 for "Deere & Company") (Annex G, Appeal Book, at 2192). Annex E to the ISO manual also lists NAME values, including for the device class field, for implements as numbers (e.g. "sprayers" is 6) (Annex E, Appeal Book, at 2174-2175). As will be seen, the appellant relies heavily on the use of words to represent data in Figure 7 of the '742 Patent's disclosure to argue that the FC judge erred in construing the terms "manufacturer code" and "device class" as limited to their ISO meaning, given that ISO represents message data with numbers.

[25] Some PGNs are reserved for non-standard, proprietary messages, allowing manufacturers to send their own formatted messages over a message bus without using the ISO standard

(Annex A, Appeal Book, at 2130-2164; Annex G, Appeal Book, at 6628-6634). Since compliance with ISO is voluntary, the availability of proprietary PGNs limits its practical interoperability. However, the parties' experts agreed that deciphering PGNs through reverse engineering to determine the associated communication protocol was a commonplace practice in the CGK (FC Decision, at para. 68).

[26] McHaffie J. also determined that the skilled person would be familiar with certain basic ISO terms, such as NAME field, object pool, and address claim message (FC Decision, at paras. 68-72; NAME fields, Appeal Book, at 6783). Of note, he found Dr. Edwards' refusal to admit that the definitions ISO provides for the terms "manufacturer code" and "device class" would be within the CGK inconsistent with his second expert report, where he stated at paragraph 76:

> [t]he skilled person would also know that an "address claim message" and an "object pool version message" are messages defined in [ISO]. According to the standard, an address claim message contains a "NAME" field, which encodes a manufacturer code and a device class. Also according to the standard, an object pool version message identifies a specific version of an implement's virtual terminal. A skilled person would know that the object pool version message is a part of the "Get Version message", and the 742 Patent describes how the system can detect the address claim message and Get Version message from the message data…
>
> [Edwards Report, Appeal Book, at 2238; see also para. 123 at 2249, paras. 148-149 at 2259, and para. 151 at 2260 (references omitted).]

[27] In that report, he agreed with Mr. Ault that the CGK encompassed knowledge of address claim messages and the NAME field, including its "manufacturer code" and "device class" parameters, stating that the skilled person would "know those terms" (FC Decision, at para. 73).

[28] While McHaffie J. agreed with Dr. Edwards that the skilled person would not have memorized the entire ISO, he concluded that, as someone with more than a working knowledge of precision agriculture concepts, the skilled person would not need to consult the standard for basic terms, such as “manufacturer code” or “device class” (FC Decision, at para. 74).

[29] Neither party contested this characterization of the skilled person or the CGK before us. I see no reversible errors in these conclusions of the FC, and adopt them for the subsequent analysis.

[30] Turning now to the construction of the terms “manufacturer code” and “device class”, this Court recently reiterated the principles applicable to a purposive claim construction, in particular noting the role that the patent’s disclosure plays in this exercise. That is, the entire patent, including the disclosure, must be considered as the disclosure may define technical terms or clarify ambiguous ones. However, the disclosure cannot be used to enlarge or contract the scope of the claims; adherence to claim language is key (*dTechs EPM Ltd. v. British Columbia Hydro and Power Authority*, 2023 FCA 115, at para. 69, citing *Biogen*, at paras. 72-73).

[31] Briefly, the words of patent claims are to be read through the eyes of the skilled person in light of the CGK as of the publication date. They are to be understood in context, individually and as a whole, in light of their purpose and the disclosure. A patent is to be interpreted akin to a regulation (*Biogen*, at para. 72, citing *Whirlpool*, at para. 49(e)).

[32] Although expert evidence may assist the Court in construing a patent's technical terms meaningfully, the correct construction of claims is ultimately a question of law. The Court is not bound to a construction proffered by any expert (*Biogen*, at para. 73).

[33] I agree with the FC judge's construction of the '742 Patent claims, in particular his limitation of the construction of the terms "manufacturer code" and "device class" to their ISO meaning. AGI says that this is a purposeless construction that fails to give effect to their role as part of the implement profile and reads out the "interoperability" purpose of the invention. Instead, it argues that a purposive construction of these terms would recognize that they could be represented by any values, not restricted to their ISO meaning.

[34] As will be seen, if the terms "manufacturer code" and "device class" are construed broadly, CanPlug and FarmCommand are more likely to infringe the '742 Patent, but no matter how broadly or narrowly they are construed, given that the ISO standard is part of the prior art, AGI faces an uphill battle on both anticipation and obviousness.

[35] The terms "manufacturer code" and "device class" appear in claims 1, 2, 20, 21, 38, and 39. It is clear from McHaffie J.'s reasons that, in arriving at his construction of these terms, he considered the CGK and the evidence of both parties' experts regarding their technical meaning, preferring Mr. Ault's proposed construction as

> consistent with the use of the terms "manufacturer code" and "device class" appearing in, and defined by, [ISO], which was part of the CGK of the [skilled person] at the relevant date and which is directly applicable to the field of the invention
>
> [FC Decision, at para. 161.]

[36] In his expert report, Dr. Edwards' evidence provided no examples of, or support for, the broader interpretation for these terms advanced by AGI. In fact, the evidence demonstrated that the SAE J1939 standard, on which ISO was based, uses the terms in the same way (FC Decision, at para. 135; see e.g. Ault First Report, Appeal Book, at paras. 70, 95, 177). Further, McHaffie J. found that "Dr. Edwards' efforts to downplay the importance of [ISO] led him to make inconsistent statements…which undermined the persuasiveness and reliability of his evidence on this point" (FC Decision, at para. 162).

[37] "Manufacturer code" and "device class" are not defined in the disclosure, though they are referenced (Patent, at 9 lines 8-9). These terms generally appear together throughout the patent, along with numerous other technical terms derived from ISO (e.g. "task controller", "virtual terminal", "NAME field", "address claim message"). McHaffie J. found, and I agree, that the "repeated connected use of two terms that are terms of art connected in [ISO] as part of the NAME field would suggest to the skilled reader that the terms are being used in the sense of that standard" (FC Decision, at para. 150).

[38] The only exception to the foregoing observation that the terms "manufacturer code" and "device class" appear together throughout the '742 Patent specification is in the flowchart of Figure 11, where the term "device class" appears alone. However, here it is presented as part of the NAME field of the address claim message (Patent, Figure 11). I note that the parties agreed that both "NAME field" and "address claim message" take their ISO meanings and, since the address claim message in ISO contains the "manufacturer code," "manufacturer code" is necessarily imported here alongside "device class" (Appeal Book, NAME and address, at 6782).

[39] ISO itself is also expressly referenced at numerous points throughout the disclosure (Patent, at 13 line 13; at 20 line 23).

[40] AGI relies on the following Figure 7, which depicts "an implement profile 705 in XML format," in support of its argument that the terms must take a broader meaning than that prescribed by ISO:

FIG. 7

Here, the term “Device” is associated with the word “Sprayers”, and the word “Manufacture” is associated with the word “Deere.” Given that ISO uses PGNs to encode manufacturers and NAME values to represent devices (i.e. “Deere” is 12, and “Sprayers” is 6), AGI says this is incompatible with the words used in Figure 7; specifically, that Figure 7 supports a broader construction where the impugned terms encompass any identifier of a manufacturer and device and are not limited to their ISO meaning. I do not agree.

[41] Before us, AGI argued that the FC judge “sought to discredit the impact of the inventors’ disclosure in Figure 7 by holding that no expert expressly referred to it in his reports” (AMFL, at para. 52). This is not an accurate characterization of the reasons underlying McHaffie J.’s decision to reject the parties’ arguments on Figure 7. Rather, he was “unwilling to place material reliance” on the relevance of Figure 7 to the construction of “manufacturer code” and “device class” as neither expert provided evidence *about how the skilled person would understand the use of the terms in this figure*.

[42] I note that the arrow labelled 710 in Figure 7 points to the word “NAME” to indicate “the values in the NAME field,” per the figure explanation in the disclosure (Patent, at 35 lines 7-9; Figure 7). At the risk of repetition, I reiterate that the parties agreed that the NAME field in the ‘742 Patent takes its ISO meaning. While the parties did not agree that the NAME field in ISO defines a “device class” and “manufacturer code”, when one looks at the ISO manual, Table 1 of Part 5 defines the “device class” and “manufacturer code” parameters of the NAME field (ISO manual, Appeal Book, at 6783). By linking the contents of Figure 7 to the NAME field, the disclosure connects it to ISO.

[43] Further, the record includes an academic paper by G. Steinberger, et al. that discusses modes of information sharing in mobile farm equipment systems, noting that "[f]or data transfer the XML format *of the ISOBUS* part 10 can be used" (Steinberger G. et al., Appeal Book, at 4930 (emphasis added)) and ISO itself provides for an XML definition in part 10 (ISO, Appeal Book, at 7083-7090, 7092-7106). This suggests that Figure 7 may depict underlying ISO data, which would be represented numerically by PGNs or NAME values, translated or transformed into words for presentation in XML format for some purpose, such as data transfer, as contemplated by ISO and the contemporaneous literature.

[44] Notwithstanding that these connections to the ISO lexicon do not support AGI's argument that Figure 7 depicts an embodiment where "manufacturer code" and "device class" take on a non-ISO meaning (in fact, evidently ISO utilizes XML in certain situations), the Court also "heard little evidence about XML" (FC Decision, at para. 157). On this basis, it was reticent– and rightly so –to reach conclusions about the meaning of the text in Figure 7.

[45] AGI also says that the FC judge's reasoning was "internally inconsistent" as he did not limit the construction of the "message bus" in claim 1 to the ISOBUS (Patent, at 4 line 25; at 40 lines 4-5), unlike his limitation of the terms "manufacturer code" and "device class" to their ISO meanings (AMFL, at para. 59). To the contrary, McHaffie J.'s construction of these elements was logical and grounded in the language of the '742 Patent.

[46] The CGK included –AGI agrees—multiple examples of different types of message busses: CAN bus, ISOBUS, and J1939 to name a few. Again, there was no evidence of other

technical interpretations of “manufacturer code” or “device class” in the CGK besides their ISO meanings. While the disclosure of the ‘742 Patent refers to a “Deutsch 9-pin connector 365 *consistent with the [ISO]* input/output connection standard” on the Relay Device, it expressly states that “[t]he [R]elay [D]evice 300 may also include a *SAE™ J1939* or a *SAE J1708/J1587* data port” that allows it to connect to non-ISOBUS message buses (Patent, at 20 lines 22-25 (emphasis added)). No alternatives to the ISO meanings for “manufacturer code” or “device class” are provided in the disclosure.

[47] The CGK and the disclosure of the ‘742 Patent support an interpretation of “message bus” that is not limited to the ISOBUS.

[48] Purposive construction requires claims to be read with an eye to their purpose, but does not allow purpose to create new essential elements not found in the claims (*Free World Trust*, at para. 31). The purpose of the terms “manufacturer code” and “device class” is to enable the invention to conduct a match between the implement in use and its stored implement profile, allowing it to know which implement is being used and, through the associated known communication protocol, how it communicates (FC Decision, at para. 181).

[49] AGI would characterize the purpose of the terms “manufacturer code” and “device class” more broadly as facilitating “interoperability”; this broad purpose, it says, would require a similarly broad construction of the terms. It asserts that the invention requires a plurality of implement profiles to reflect this purpose, pointing to the “implement profiles collection” described in Figures 4 and 5 of the disclosure in support. It goes further, arguing that a matching

step for a single implement would be illogical, as it would be hard-coded in the relay device. The FC judge, it says, thus erred in accepting that the invention could work with a single implement profile.

[50] AGI further says that the ‘742 Patent sought to achieve “interoperability” where ISO’s promise to this effect “was not borne out because manufacturers chose to use proprietary messaging formats” (AMFL, at para. 17).

[51] I will return to this issue of interoperability in the obviousness analysis, but suffice to say at this point that, to the extent that the ‘742 Patent was directed at interoperability, it did not address interoperability in the same manner as ISO; at best, it enabled compatibility. That is, ISO sought to address interoperability issues arising where a farming implement, such as a seeder, from one manufacturer could not be used with equipment, such as a tractor, made by a different manufacturer because they operated with distinct “languages”. The ISOBUS acts as a “translator” between the implement and the equipment, allowing them to communicate on common ground using ISO. The Relay Device of the ‘742 Patent, however, does not facilitate communication between farming implements and equipment in this way. It is connected, via a bus connector, “to a message bus [e.g. ISOBUS] on a farming vehicle or farming implement” and “listens” for useful messages transmitted on the bus (Patent, at 40 lines 4-5).

[52] I accept that “interoperability” could arise in the context of the ‘742 Patent in the sense that it is compatible with, and can detect and transmit messages flowing through the message bus

that originated from farming implements made by different manufacturers, but this benefit is distinct from the interoperability issue targeted by ISO.

[53] Even if I accept that the ‘742 Patent was directed to the problem of “interoperability” as characterized by the appellant (that it addresses the outstanding problem of enabling communication between machines produced by different manufacturers), neither the claims nor the disclosure identify “a requirement for multiple *communication protocols*, let alone the use of proprietary ones” (FC Decision, at para. 483 (emphasis in original)). The collection of profiles could be comprised of ISO-compatible profiles from different manufacturers. If so, the invention would still be able to understand and acquire data from different implements made by various manufacturers, but would not achieve the interoperability purpose as characterized by the appellant.

[54] I pause here to emphasize that the appellant seeks to exclude an embodiment of the invention where it contains a single implement profile. As will be seen, this construction would not be supported by the principles of purposive construction advanced by this Court in *Biogen*.

[55] The express language of claims 1, 20, and 38 describes “an implement profile” in the singular. Gauthier J.A. recently confirmed that patent claims are to be interpreted as regulations (*Biogen Canada Inc. v. Pharmascience Inc.*, 2022 FCA 143, at para. 72 [*Biogen*], citing *Whirlpool*, at para. 49). On this basis, AGI invokes the *Interpretation Act*, R.S.C. 1985, c. I-21 to argue that “implement profile” should be read as “implement profiles.” I agree that the invention is capable of supporting multiple implement profiles, but it is also capable of supporting, at a

minimum, a single implement profile. In fact, the *Interpretation Act* would require that the singular implement profile is not read out of the language of the claims.

[56] The ‘742 Patent does not claim a “collection” of implement profiles; rather, this entity only appears in the disclosure (e.g. Figure 5). Notwithstanding that the language of the disclosure should not be used to broaden the reach of the claims, to the extent that the inventors “intended” to include the “idea” of a requirement for multiple profiles, but did not, their deliberate use of singular terms in the claims and inclusion of would-be essential elements in the disclosure constitutes a “troublesome limitation” that amounts to a “self-inflicted wound” (*Free World Trust*, at para. 51).

[57] It is noteworthy that the disclosure identifies, as an element stored on the memory storage of the Relay Device, “a collection of implement profiles defining, for a collection of known farming implements…” while the related claim 1(d)(iii) expressly excludes the word “collection” and the plural “profiles,” instead only claiming “an implement profile defining, for a known farming implement…” (Patent, at 5, line 5; at 40 lines 12-14). These express exclusions are repeated in claims 20(d) and 38(b) (Patent, at 47 lines 20-21; at 55 lines 1-3).

[58] The disclosure contemplates a growing number of known implement profiles through the creation of new profiles where a query from a connected farming implement does not return a match with a known implement profile (Patent, at Figures 10, 13). Read in the context of the ‘742 Patent as a whole, an embodiment containing the claimed single implement profile in a collection, containing only one known implement profile, that can expand to contain a multitude

of profiles would be within the scope of the claims. A construction that only claims multiple profiles, however, would claim elements in the disclosure to the exclusion of elements in the claims themselves. The disclosure should not be used to shrink the scope of the claims, and I reject a construction that would lead to this result.

[59] For these reasons, McHaffie J. did not err in purposively construing the terms "manufacturer code" and "device class" as limited to their meaning in ISO to achieve the purpose of matching the implement profile for a connected ECU to a known implement profile. This construction allows for embodiments containing multiple implement profiles, as well as an embodiment that contains a single implement profile, reflecting the text of the claims, and the relevant interpretive principles.

Essentiality

[60] Turning to essentiality, the appellant challenges the FC's findings that "manufacturer code" and "device class" are essential, and that the location of the microprocessor is essential in claim 1.

[61] I note at the outset that the onus is on the party alleging non-essentiality to establish this, and the absence of expert evidence on this issue may be highly relevant (*Allergan Inc. v. Sandoz Canada Inc.*, 2020 FC 1189, at para. 46; *Free World Trust*, at para. 57). The test for non-essentiality is two-part: 1) a purposive construction of the words of the claim indicate it was clearly not intended to be essential; and 2) at the date of the publication of the patent, the skilled

person would have appreciated that the element could be substituted without affecting the working of the invention (*Free World Trust*, at paras. 52, 55).

[62] A purposive construction will show that some elements of a claim are essential, while others are non-essential (*Free World Trust*, at para. 31). This Court has recognized that judges are "relying more and more often on the presumption that all elements of a claim are essential unless otherwise established by the patentee" (*Canada (Attorney General) v. Benjamin Moore & Co.*, 2023 FCA 168, at para. 43). To be clear, all elements of a claim are not to be presumed essential but, where a patentee asserts non-essentiality, they bear the burden of proof under the test enunciated in *Free World Trust*.

(1) "Manufacturer code" and "device class"

[63] Regarding the terms "manufacturer code" and "device class," AGI argues that McHaffie J. erred by failing to consider whether those terms are essential, particularly in the context of independent claims 1, 20, and 38, where he states expressly that "one or more" of the parameters of the known implement profile are used in matching it with the connected farming implement. Specifically, if a match could be achieved using only the "manufacturer code", without using the "device class", then the "device class" would be non-essential; and vice-versa.

[64] McHaffie J. erred in law in finding that "a claim element will be presumed essential" (FC Decision, at para. 220), but this was an error of no consequence for two reasons; one substantive and one procedural.

[65] As a matter of procedure, non-essentiality must be maintained by the party asserting it (*Corlac Inc. v. Weatherford Canada Inc.*, 2011 FCA 228, at paras. 26–27). Here, AGI's raising this argument for the first time in its closing oral submissions cannot constitute maintenance of such an assertion (FC Decision, at para. 231). Of note, Dr. Edwards made no submissions on essentiality in either of his expert reports relating to claims construction; McHaffie J. observed that this was "apparently because [he] was not given instructions on essentiality" and that "this is unusual" as assisting the Court in construing the claims, including their essential elements, is an important role of an expert in a patent litigation case (FC Decision, at paras. 219-220). Given AGI's failure to create the evidentiary foundation for its assertion of non-essentiality, much less to maintain that these terms are not essential, McHaffie J. was not obliged to find them non-essential in an evidentiary vacuum.

[66] A similar situation arose recently before the FC, where the patentee "specifically instructed [their expert] not to consider whether any of the elements were essential or nonessential" (*Boehringer Ingelheim (Canada) Ltd. v. Jamp Pharma Corporation*, 2024 FC 1198, at para. 105 [*Boehringer*]). Furlanetto J. noted this lack of expert evidence, and the patentee's inconsistent position on essentiality, in her application of the *Free World Trust* test, ultimately concluding that the element at issue was essential (*Boehringer*, at paras. 110, 113).

[67] As a matter of substance, notwithstanding that removing one of these terms is not the same thing as substituting a variant for the purposes of the *Free World Trust* test, while a match may be performed with only one of "manufacturer code" or "device class" in claims 1, 20, and 38, McHaffie J. found, and I agree, that the argument that matching involving one or more

parameters means the individual parameters are not essential was “not supported by any evidence” (FC Decision, at para. 231).

[68] In particular, there is no evidence on the record that other aspects of the invention relating to the “device class,” for example, would still function in the same way if it was removed or if it was substituted for another unidentified variant. The disclosure contemplates the identification of a connected ECU specifically using the “device class” parameter of an address claim message—“*the DEVICE CLASS field* of the NAME portion of the message is read (step 1115) to determine the ECU type”— and, if identified as an implement, storing its NAME field values in the implement database (Patent, at 36 lines 5-29; see also Patent, Figures 10-11 (emphasis added)). The storage of this data could, therefore, be disrupted if the “device class” was removed. Absent the requisite evidence, I cannot accept the appellant’s argument that the skilled person would have appreciated that such a removal, or substitution for an unidentified alternative, would not affect the working of the invention, or that it is clear the inventors intended it to be not essential.

[69] Further, the dependent claims 2 and 21 require all three parameters of the implement profile in order to conduct a match and extract the related operating parameters; removing one of these terms from these claims would clearly affect the working of the invention as it would be unable to complete a match with only two of the requisite three parameters. There is no dispute that all three terms are essential in these dependent claims.

(2) Location of microprocessor

[70] It is AGI's position that the location of the microprocessor is not essential to claim 1, but essential to claims 20 and 38, which both require that all processing occur *off* the Relay Device, which is remote to the systems. Thus, in these claims, all of the processing could occur in the system itself, but it is essential that none of the processing occur on the Relay Device.

[71] AGI says that McHaffie J. erred in his essentiality analysis of whether all computer processing required by claim 1 must be done by the Relay Device's microprocessor as opposed to over several microprocessors. The express language of claim 1 requires that the Relay Device contain "a microprocessor" and describes its matching function as performed by "the microprocessor"; there is nothing in this language that contemplates performance of processing by some unclaimed microprocessor (Patent, at 40 lines 2, 15-16). However, the appellant says that the disclosure and the CGK make it clear that the skilled person would divide computing tasks among multiple processors.

[72] The CGK does not, in fact, make this clear.

[73] The evidence of AGI's own expert suggests that this design decision is not trivial for a skilled person, and that it may have meaningful consequences for the way an invention works. In his response to one of Mr. Ault's reports describing the split architecture (where some processing is performed on the Relay Device and some is conducted on a server) of the proposed updates to create the non-infringing alterative, Dr. Edwards stated that these changes "would significantly

degrade the quality, performance, and usefulness" of the system, "fundamentally alter [its] basic architecture" and "require an extensive redesign of both the hardware and software components" (Edwards Third Report, Appeal Book, at para. 6). Further, Dr. Edwards described the impacts to the system as capable of manifesting in "subtle and unpredictable ways" that would only be revealed through extensive use, but nonetheless fundamentally alter the system (FC Decision, at para. 252; Edwards Fifth Report, Appeal Book, at para. 126).

[74] Design decisions relating to a system's processing architecture are also informed by practical considerations. So-called "edge" devices used out in the field, such as the Relay Device, may benefit from local processing where live transmission of data, collected during real-time operation, to distant servers for storage and processing may be impractical or unreliable (Edwards Seventh Report, Appeal Book, at paras. 12-13; Edwards Fifth Report, Appeal Book, at paras. 127-129). Alternatively, there may be benefits to using a "passive" Relay Device, where all processing is performed only on a server, which has, by comparison to the Relay Device, essentially unlimited storage and processing power (Edwards Second Report, Appeal Book, at paras. 158-167; Edwards Fourth Report Appeal Book, at paras. 33-36). An inventor's choices relating to these considerations can thus impact the system's functionality.

[75] For an element to be non-essential, "'work in the same way' should be taken…as meaning that the variant (or component) would perform substantially the same function in substantially the same way to obtain substantially the same result" (*Canamould*, at para. 23). FEI's expert highlights that a primary distinction between the device claims and the systems claims is where the information is stored and processed. In claim 1, which claims a device and

not a system, it occurs on the device. In claim 20, which claims a system and not a device, it occurs off the device. This certainly does not indicate that a device with split architecture would perform substantially the same function in substantially the same way. The disclosure also does not refer to embodiments where some processing is performed on the Relay Device and some is performed in another location (FC Decision, at para. 245).

[76] None of this evidence suggests that substituting the location of processing between local and distributed manifestations will result in an invention that works the same way. Absent a more compelling explanation that the local processing of data on the Relay Device is not essential, and expert evidence to this effect, I see no reversible error in the FC's determination that the location of the microprocessor in claim 1 is essential.

V. Infringement

[77] Before this Court, AGI argued that the FC erred in concluding that FarmCommand and the CanPlug did not infringe the '742 Patent because of its erroneous construction of the terms "manufacturer code" and "device class." AGI equates the manufacturer name and implement type (identified with words, for example, "tractor" or "harvester") stored in the FarmCommand database to the "manufacturer code" and "device class" parameters identified in the '742 Patent. Specifically, AGI contends that the "PGN", "source address", "opcode", and "CanPlugID" (a serial number for a CanPlug device) used by FEI to match an implement in use with a stored profile are equivalent to the parameters used to conduct a match in the '742 Patent.

[78] AGI's arguments depend on its broad construction of the terms "manufacturer code" and "device class" (that is, they are not limited to their ISO meaning), as it conceded that, on the FC's construction, FEI's CanPlug device and FarmCommand system do not, and never did, include an implement profile that defines or contains a manufacturer code or device class construed in this way (FC Decision, at para. 6, 370).

[79] Infringement of a patent claim occurs when all of its essential elements, as purposively construed, are present in an impugned entity (*Free World Trust*, at paras. 31(f), 68(4), 75). All essential elements of any of the '742 Patent's device's claims must be present in the CanPlug to constitute infringement of a claim; the same is true of the systems claims with respect to FarmCommand.

[80] The "manufacturer code" and "device class", as defined by their ISO meaning, are essential elements of the implement profile in independent claims 1, 20, and 38. Since neither FarmCommand nor CanPlug ever collected, stored, or used such information, they did not contain all of the essential elements and did not infringe those claims or any dependent claims. Of note, the FC found that "none of [PGN, source address, and opcode] is or is comparable to a *manufacturer code, device class,* or *version* contained in the *implement profile*, even on [AGI]'s construction" (FC Decision, at para. 326 (emphasis in original)).

[81] I have accepted the FC's construction of the terms "manufacturer code" and "device class", including their essentiality, and decline AGI's invitation to reconsider the Court's infringement holdings.

VI. Validity

[82] As will be seen, the FC did not err in finding the ‘742 Patent invalid, with all of its claims either anticipated or obvious.

Anticipation

[83] Turning to the issue of anticipation, the FC held that the GreenStar 3, a relay device manufactured by Deere & Company, anticipated the device claims 1, 3-4, 7-13, 15, and 17-19 of the ‘742 Patent. Before us, AGI argued that the Court erred in so finding on two bases: one legal, and one factual. First, AGI says McHaffie J. engaged in a prohibited mosaicking of the prior art; second, it alleges that he made factual errors in interpreting how the GreenStar 3 works. AGI also noted that the GreenStar 3’s features varied between versions of the device, and that not all versions were available in all countries. For this reason, it says that it is unclear in the FC’s reasons which version was found anticipatory.

[84] At trial, there were several sources of evidence on the functions and properties of the GreenStar 3, including its user manual [the GS3 manual] and an affidavit with several exhibits (advertising brochures for the device, its user guide, software release notes, and an ISOBUS manual). In reaching his conclusion on anticipation, the judge primarily relied on FEI’s expert’s evidence and the GS3 manual.

[85] The anticipation analysis is necessarily limited to a single piece of prior art, which must disclose the essential elements of each claim as construed (*Sanofi*, at para. 28, *Free World Trust*,

at para. 26); unlike for the purposes of determining obviousness, combining more than one piece of prior art in the analysis is prohibited (*Sanofi*, at para. 28). The prior art does not need to disclose an exact replica of the invention as claimed, but will be anticipatory if, when performed, it would "necessarily infringe" the claims of the invention (*Shire*, at paras. 44, 50). A skilled person is presumed to be willing to undertake trial and error experiments to work the patent and may supplement the prior art with their CGK (*Sanofi*, at paras. 27, 33, 37).

[86] Contrary to the appellant's assertions, however, that single piece of prior art need not be a document.

[87] A single physical product can be put forward as anticipatory on the basis that its prior sale and use disclosed the subject matter of the claims. The court's analysis of the impugned product, using contemporary techniques and data, "is equivalent to the reading by a skilled person of a single prior publication and following it to the claimed invention" (*Baker Petrolite Corp. v. Canwell Enviro-Industries Ltd.*, 2002 FCA 158, at paras. 85-85, 88, 110; see also *Wenzel Downhole*, at paras. 84-88).

[88] Clearly, where anticipation is assessed by prior sale and use of a physical product, the contemporary references are not themselves alleged to anticipate. Rather, they are tendered to describe the functions and properties of the single allegedly anticipatory device.

[89] Here, FEI argued that the prior sale and use of a single physical product, the 2630 GreenStar 3 display, was anticipatory, and the Court was entitled to consider various available materials, all of which related to the GreenStar 3, in its analysis. There is no legal error here.

[90] I will briefly address the issue of which country the allegedly anticipatory version of the GreenStar 3 was from. In each of his findings of fact in his anticipation analysis relating to claim 1, McHaffie J. relied on the GS3 manual for the 2630 GreenStar 3 display. The first page of this manual includes the word "CALIFORNIA" in capital letters and contains two warnings that "[t]he State of California requires" (Appeal Book, 2630 GreenStar Display, at 987). I am satisfied that the version of the 2630 GreenStar 3 display the FC found anticipatory was made available for sale and use in the United States of America, specifically in the State of California.

[91] Turning to the appellant's argument that McHaffie J. misapprehended the way that the GreenStar 3 works, it is essentially two-fold: first, that the device does not disclose the "manufacturer code" or "device class" terms as defined by the FC because it uses words, not PGNs, to represent the manufacturer and implement type; second, that the device's Virtual Terminal mode, which operates according to ISO, does not store a communication protocol. As I will explain, these arguments simply represent AGI's disagreement with the FC's conclusions based on its findings of fact, and fail to demonstrate any reversible palpable and overriding error.

[92] For the first time on appeal, AGI describes the GreenStar 3 as having two modes of operation: GS3 Pro mode and Virtual Terminal mode. It says that GS3 Pro mode is engaged when the device is used with Deere & Company equipment and leverages the company's

proprietary communication protocols; in this mode, it operates as a touch screen and gives the user control over the implement's ECUs. Virtual Terminal mode, on the other hand, is used when the device is communicating with ISO-compliant, non-Deere & Company equipment; in this mode, it operates as a "dumb display" and passively displays information about the connected implement (AMFL, at para. 88).

[93] On the first point, McHaffie J. accepted Mr. Ault's evidence that the GreenStar 3 stores information about farming implement profiles, "includ[ing] the manufacturer, the implement type, model, and name" when it is connected to an ISO-compatible implement (FC Decision, at para. 420, citing the GS3 manual, at 367-373). The full context of this evidence is illuminating, as the GreenStar 3

> …automatically detect[s] the implement's Manufacturer Code and Device Class from the NAME field of the implement's Address Claim message sent over the bus by the implement on start up…The display also saves the implement's unique identifier from the Address Claim message, in other words a "version"…
>
> [Appeal Book, Ault First Report, at para. 320(b).]

The parties agreed that the skilled person would understand the "unique identifier" to equate to a "version" for the purposes of ISO (FC Decision, at para. 420).

[94] Recall the skilled person would know that in ISO, compliant implements send a NAME field, containing the "manufacturer code", "device class", and "version" parameters, as part of their address claim message communicated over the ISOBUS to the farming equipment (FC Decision, at paras. 74, 420). This is how the FC construed the terms "manufacturer code" and "device class" in the '742 Patent.

[95] AGI says that the GreenStar 3 discloses a manufacturer as “John Deere” and an implement model as “JD_ISOBUS_SPRAYER”, which is not compliant with the numerical PGNs used in ISO (AMFL, at para. 90). This argument is reminiscent of its argument regarding Figure 7 of the ‘742 Patent –that Figure 7’s representation of a “manufacturer code” and “device class” with words rather than numbers means that these terms in the ‘742 Patent cannot be limited to ISO –which I dismissed above (see paras. 40-44).

[96] The FC found, and I agree, that “nothing in Claim 1…requires…PGNs defined for proprietary messages” (FC Decision, at para. 426). Whether the “manufacturer code” and “device class” are represented by words or numbers is of no consequence. Rather, what is relevant is the manner in which these terms are used, which is to comprise the NAME field of the address claim message; this is how both the ‘742 Patent and the GreenStar 3, operating in what the appellant describes as Virtual Terminal mode, collect and store information from a connected ISO-compliant implement.

[97] This is notably distinct from how FEI’s CanPlug device collects information about connected implements. While the CanPlug uses words to identify the implement’s manufacturer and type, it does not derive this information from the NAME field of the address claim message as defined in ISO (FC Decision, at para. 6).

[98] I note that, even if the GreenStar 3 did not use the terms “manufacturer code” or “device class” exactly as in the ‘742 Patent, or if it represents the “manufacturer code” or “device class” using words or numbers that are not identical to those used in the ‘742 Patent, this is of no

consequence. The terminology used is not material. The relevant inquiry in the anticipation analysis is whether the prior art discloses and enables the essential elements of the patent claims as construed. Essentially, the question is whether the skilled person trying to understand the prior art, here the GreenStar 3, would understand it to disclose this element (*Sanofi*, at para. 25; *Shire*, at paras. 42, 44).

[99] To conclude on this point, both the '742 Patent and the GreenStar 3 collect and store information about a connected ISO-compliant implement derived from the NAME field of its address claim message, including its "manufacturer code", "device class", and "version" as defined in ISO. If one were to practice the GreenStar 3, it would necessarily infringe this essential element of claim 1 of the '742 Patent and is thus anticipatory.

[100] AGI argues that the GreenStar 3 operating in Virtual Terminal mode does not store the known communication protocol of the implement profile, an essential element of claim 1; rather, this information is stored by the implement itself. This concern can be quickly disposed of.

[101] The FC expressly held that

> Dr. Edward's own evidence…was that aspects of the implement profile [including the communication protocol] could be stored in multiple places, and that effectively wherever the *communication protocol* was stored became part of the storage of the *implement profile*, provided it was sufficiently associated to allow the device to use the *communication protocol*[.]
>
> [FC Decision, at para. 427 (emphasis in original).]

[102] The FC found that the communication profile of the GreenStar 3, which allows it to communicate with ISO-compliant implements, is stored on the device itself and comprises part of the implement profile (FC Decision, at para. 427).

[103] However, even if the FC erred in its understanding of how the GreenStar 3 works and that, as AGI suggests, when the GreenStar 3 is operating in Virtual Terminal mode the communication protocol is stored on the implement itself, it would still form part of the implement profile. The GreenStar 3 can evidently communicate with an ISO-compliant implement upon connection, using the applicable communication protocol to retrieve information from it for passive display, and is thus, by Dr. Edward's own evidence, "sufficiently associated" to become part of the implement profile.

[104] AGI also says that the judge did not address claim 13 in his anticipation analysis (AMFL, at para. 92). I disagree. Having found the independent device claim 1 invalid for anticipation, McHaffie J. then turned to the dependent claims, including claim 13, and "accept[ed] Mr. Ault's evidence in respect of the dependent claims and [found] that they [were] also anticipated by the GreenStar 3, except in respect of Claims 14 and 16" (FC Decision, at para. 451). Given that AGI's expert did not dispute any issues raised by Mr. Ault's evidence regarding anticipation of the dependent claims, there was no need for the judge to explain his reasoning on this point in copious detail (FC Decision, at para. 451).

[105] For the foregoing reasons, the appellant has failed to demonstrate a reversible error regarding the FC's determination that claims 1, 3-4, 7-13, 15, and 17-19 of the '742 Patent are invalid as anticipated by the prior sale and use of the GreenStar 3.

Obviousness

[106] The FC found claims 2, 5-6, 14, 16 and 20-44 invalid for obviousness. The appellant argues that the Court erred in so doing by misidentifying the general and specific inventive concepts of the '742 Patent, and in finding them not inventive over the state of the art. AGI also asks this Court to refer the issue of obviousness back for redetermination in light of the errors that it alleges the FC committed in its anticipation analysis involving the GreenStar 3.

[107] AGI characterizes the general inventive concept of the '742 Patent as its solution to the interoperability issues in precision agriculture; this, it says, is evident in the invention's ability to help farmers "understand…the data from multiple equipment manufacturers using different message languages… to unlock…the valuable data" (AMFL, at para. 2). This solution is purportedly claimed via the matching process described in the '742 Patent claims, and the "collection of implement profiles" identified in the disclosure.

[108] As I have explained, the FC made no reversible error in its assessment of the GreenStar 3 for the purposes of the anticipation analysis.

[109] The legal principles identified and considered by the FC in its claim-by-claim analysis for obviousness are not in dispute: *Sanofi* and *Shire* provide analytical frameworks to assist the

Court in this task. Of note, the cumulative effect of the prior art is considered in determining, objectively and purposively, whether, without knowledge of the invention, a skilled person with their CGK would have come directly and without difficulty to the invention having regard to the problem it was designed to address (*Tearlab Corporation v. I-MED Pharma Inc.*, 2019 FCA 179, at paras. 19, 81; *Shire*, at para. 103).

[110] Regarding the role of the disclosure in the obviousness analysis, the Court must take a balanced approach: the disclosure cannot be ignored, but the claims themselves cannot be abandoned. Since a single inventive concept must flow through the patent, a general inventive concept should not be imported from the disclosure, but the disclosure can be helpful in construing the inventive concept (*Shire*, at paras. 55, 77).

[111] Contrary to the methodology provided for in *Sanofi* and *Shire*, AGI's argument that the general inventive concept of the '742 Patent is interoperability is based primarily on the description of the invention in the disclosure:

> …[C]onventional precision farming techniques, computer systems and related technology has heretofore failed to provide farming businesses and other interested parties with an easy-to-use, unobtrusive, secure and reliable way to capture, store, share and profit from what **is fast becoming a massive amount of very detailed, and enormously valuable, farming operation data generated by these automated farming techniques, machines and computer systems.** Thus, critically important farming operation data, such as how much seed, fertilizer, water, and pesticide were used on a particular field, how often the field was treated with a particular chemical, which parts of the field were left untreated for some reason, what were the weather conditions during the farming operation, **what kind of equipment was used to perform the farming operation**, which settings were activated during the farming operation, and which field was treated during the farming **operation often goes uncollected** and, therefore, remains **unavailable** for study and analysis to the farmers and other interested parties in the agricultural industry.
>
> [AMFL, at para. 95 (emphasis as in original).]

The appellant points to the text emphasized in bold as evidencing the "interoperability inventive concept" of the '742 Patent through its purported demonstration of the invention's purpose of solving the interoperability problem, which had not been "borne out by [ISO]" (AMFL, at paras. 96-97). AGI further argued that the FC "ignored the purpose of the system which was to solve the known problem of how to reliably collect the valuable data from different brands of farming equipment" (AMFL, at para. 96).

[112] On a plain reading of the disclosure, I cannot agree that the bold text either identifies the invention's prominent features or even speaks to a role for the invention in facilitating communication between implements and equipment designed by different manufacturers. It would be more accurate to describe the bold text as outlining the benefits flowing from the invention; the invention itself being an "easy-to-use, unobtrusive, secure and reliable way" for stakeholders to access these benefits.

[113] It is noteworthy that the word "interoperability" does not appear anywhere in the '742 Patent: not in its claims or its disclosure. The interoperability concept, as characterized by AGI is not claimed. None of the claims are directed towards a collection of implement profiles; in fact, the claims expressly provide for embodiments of the invention with only a single implement profile (FC Decision, at para. 482). As McHaffie J. found, the '742 Patent "does not discuss the issue of interoperability, and certainly does not present its device as a solution to it" (FC Decision, at para. 483).

[114] AGI invites this Court to construe the general inventive concept of the ‘742 Patent to include interoperability, even though it is not represented in the claims, on the basis that *Sanofi* and *Shire* confirmed that a patent’s specification can provide clarification on the general inventive concept where it cannot be grasped from the claims (AMFL, at para. 98, citing *Sanofi*, at para. 77 and *Shire*, at paras. 60, 67, 73-76, 79).

[115] Neither *Shire* nor *Sanofi* provide a license to distill the inventive concept of a patent from the disclosure alone, without a basis in the claims.

[116] The principle on which AGI relies is of particular relevance in the context of patented medicines, where “the claims in issue are limited to their bare formulae and the process of their making, excluding their beneficial properties or anything that is not an ‘essential element’ of the claim” (*Shire*, at para. 61). In such cases, the judge may be unable to fully grasp the inventive concept from the claims alone and the patent specification necessarily augments the analysis; however, if recourse is had to this step, the specification cannot be used to read the inventive concept more broadly or narrowly than the claim language allows (*Shire*, at para. 67).

[117] Where, as here, the inventive concept can be identified from the claims construction exercise, I decline AGI’s invitation to eschew a framing of the general inventive concept grounded in the claim language, as required by section 28.3 of the *Patent Act*, R.S.C. 1985, c. P-4 and paragraph 31 of *AstraZeneca Canada Inc. v. Apotex Inc.*, 2017 SCC 36 (*Shire*, at para. 67). The interoperability concept as characterized by AGI is not found in the disclosure; even if it

was, relying on the disclosure alone to construe the general inventive concept in this case would be an error of law.

[118] I prefer the general inventive concept identified by the FC at paragraph 486 of the FC Decision:

> computer technologies for collecting and processing agronomic data involving (a) the use of stored information (*manufacturer code*, *device class*, *version*, *communication protocol*) about a "known" implement to automatically recognize the farming implement being used and know how it communicates data; (b) the use of data sent by the implement to determine *operating events* and a *travel path*; and (c) the automatic identification of the land on which farming is happening.

[119] I do not see an error in the judge's characterization of the general inventive concept: it is informed by the disclosure, reflects the claims construction exercise, encompasses the essential elements but is not limited to them, is not wider or narrower than the language of the claims, and can apply throughout the impugned claims (*Shire*, at paras. 67, 69-70, 74).

[120] In comparing this general inventive concept with a mosaic of the prior art, the FC determined that "there was no difference between the state of the art and the general inventive concept" of the '742 Patent (FC Decision, at para. 495).

[121] Turning to the specific inventive concept of each claim, which is the manner in which the claim implements the general inventive concept, the FC's analysis was rich with distinct findings of fact. Before us, AGI sought to reframe the obviousness issues as questions of law and reargued them based on evidence that the trier of fact already considered.

[122] AGI takes issue with the FC's finding that the inventive concepts of claims 2, 21-25, and 40, relating to the use of the virtual terminal object pool version to match, was inherent in ISO and non-inventive over the state of the art on the basis of Mr. Ault's expert evidence. Specifically, it says McHaffie J. failed to resolve the conflict in Mr. Ault's opinion evidence on obviousness (that this matching step was not inventive) with his evidence on sufficiency (that this matching process required inventive ingenuity and considerable effort) (AMFL, at paras. 102-103). It advances similar arguments regarding the FC's conclusions that the inventive concepts of claims 5-6 and 22-23, relating to the use of virtual terminal object IDs to determine operating events, were non-inventive.

[123] These arguments can be readily disposed of.

[124] It was open to the FC to find that conducting a match using the virtual terminal object pool version was inherent to ISO on the basis of Mr. Ault's expert evidence or as demonstrated in the ISO standard, which was proffered as a piece of prior art at trial. Further, FEI's sufficiency argument was raised in the alternative and, since McHaffie J. invalided all of the '742 Patent claims on other bases, was not considered in the FC Decision (at para. 526). There is no palpable and overriding error here.

[125] AGI's other two arguments relating to the specific inventive concepts of claims 14-16 and the systems claims 20-44 allege that the FC erred in finding the claims non-inventive because of its erroneous conclusions on claims construction and essentiality, the GreenStar 3, and the general inventive concept of the '742 Patent.

[126] As I have already explained, the FC did not err in reaching its conclusions on these issues; the appellant has thus failed to identify a palpable and overriding error in the judge's reasoning that would justify this Court's intervention.

[127] For the foregoing reasons, I therefore see no reviewable error in the FC's finding that the systems claims 20-44 and device claims 2, 5, 6, 14, and 16 are invalid for obviousness.

VII. Disposition

[128] I would dismiss this appeal, as well as the appeal on costs (File No. A-16-25), both with costs. This appeal is subject to a confidentiality order issued by Roussel J.A. on November 27, 2024, pursuant to Rule 151 of the *Federal Courts Rules*, SOR/98-106. These reasons are being released on a confidential basis to allow the parties to make submissions as to what confidential information must be redacted from the reasons before they are released publicly.

"Donald J. Rennie"
J.A.

"I agree.
J.B. Laskin J.A."

"I agree.
Nathalie Goyette J.A."

FEDERAL COURT OF APPEAL

NAMES OF COUNSEL AND SOLICITORS OF RECORD

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