

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SMAXTEC INC. and SMAXTEC ANIMAL CARE GMBH,
Petitioner

v.

ST REPRODUCTIVE TECHNOLOGIES, LLC,
Patent Owner.

IPR2024-00875
Patent 9,844,206 B2

Before KALYAN K. DESHPANDE, *Chief Administrative Patent Judge*,
STACEY G. WHITE, *Acting Vice Chief Administrative Patent Judge*, and
CHARLES J. BOUDREAU, *Acting Vice Chief Administrative Patent Judge*.

KALYAN K. DESHPANDE, *Chief Administrative Patent Judge*.

DECISION
Delegated Director Review of
Final Written Decision
37 C.F.R. § 42.75

I. INTRODUCTION

smaXtec Inc. and smaXtec Animal Care GmbH (collectively, “Petitioner”) filed a Petition requesting an *inter partes* review of claims 1–4, 6, and 17–20 (the “challenged claims”) of U.S. Patent No. 9,844,206 B2 (Ex. 1001, “the ’206 patent”). *See* Paper 1 (“Pet.”). On November 20, 2025, the Board found that Petitioner had shown, by a preponderance of the evidence, that all of the challenged claims are unpatentable in a Final Written Decision. *See* Paper 49 (“Decision”).

ST Reproductive Technologies, LLC (“Patent Owner”) filed a Request for Director Review of the Final Written Decision (Paper 50, “DR Request”) as to dependent claims 4, 6, and 18–20, and Petitioner filed a Response to the Request for Director Review (Paper 51, “DR Response”).

The Director delegated Director Review of the Final Written Decision to this Delegated Rehearing Panel because “the parties are in agreement that the Board erred in finding that Patent Owner ‘does not separately argue’ claim 18, ‘instead relying on its prior argument against claim 1,’ Decision 48, 81, and also that Board’s findings as to claims 6, 19, and 20 need to be reconciled, *compare* Decision 42–43, *with id.* at 48–49,” such that “convening a DRP is appropriate.” DRP Order (Paper 52) 1; *see* DRP Identification (Paper 53).

For the reasons explained below, we determine that the evidence of record does not support the Board’s findings as to the unpatentability of claims 4, 6, and 18–20, and, accordingly, modify the Final Written Decision to reflect that Petitioner has not proven by a preponderance of the evidence that claims 4, 6, and 18–20 are unpatentable.

II. ANALYSIS

A. Trevarthen Grounds: Claims 4 and 18–20¹

We start with claim 1 of the '206 patent, which, in pertinent part, requires matching “sensed animal information to animal information stored in a database including an amount of milk production or a number of days in milk,” entering “the sensed animal information and the animal information stored in the database as logical variables into a logical expression,” and “solving the logical expression to obtain a corresponding logical value.”

The Board found that “a preponderance of the evidence supports Petitioner’s argument that Trevarthen teaches or suggests retrieving sensed information, e.g., temperature, from an RFID.” Decision 29 (citing Ex. 1005, 24, 121, 123²). The Board further found that Trevarthen teaches or suggests storing milk production information and “matching sensed temperature information and [the] stored milk information using the cow’s identification information.” *Id.* at 30–31 (citing Ex. 1005, 100–102, 104, 109, 112, 121; Ex. 1003 ¶¶ 97–98). Then, “[c]onsidering the entire record, [the Board] agree[d] with Petitioner that Trevarthen teaches or suggests entering sensed temperature information and stored milk information as logical variables into the same logical expression” and that one of ordinary skill “would have had a reason to combine these values into a logical expression to more accurately predict illness.” Decision 36–37 (citing Ex. 1003 ¶¶ 110–119; Ex. 1005, 1, 18, 98, 109, 113–118, 121, 122).

¹ The Board did not find claim 6 unpatentable in view of Trevarthen. *See* Decision 42.

² Consistent with the citation format used in the Final Written Decision, our citations to Exhibit 1005 refer to the original page numbers of the Trevarthen thesis rather than to the page numbers added by Petitioner.

The claim 1 conclusion was supported by Dr. Brown-Brandl's testimony that, "[f]or example, temperature fluctuations . . . and unexpectedly low milk production . . . can both be signs of illness," such that one of ordinary skill "would have been motivated to include within Trevarthen's system a logical expression into which both temperature and milk production information could be input as logical variables in order to serve as an enhanced illness detection alert system." Ex. 1003 ¶ 113. Dr. Brown-Brandl further testified that "[b]y considering both temperature and milk production in a logical expression . . . [a] farm would be able to detect sick animals more reliably, as, for example, [a] temperature above an upper threshold combined with decreased milk production would be more likely to indicate illness compared to considering temperature alone, where elevated temperature could indicate a cow is in heat." *Id.* ¶ 116.

Claim 4 depends from claim 1 and further requires that the animal information stored in the database "comprises health information," and that the "logical value indicates an occurrence of an illness of said animal."

The Board agreed with Petitioner that a person with ordinary skill in the art would understand the "treatments" disclosed in Trevarthen as teaching the claimed "health information associated with [the] animal." Decision 39–40. Then, regarding the use of the health information in a logical expression, the Board found as follows:

As discussed above as to limitations 1[E] and 1[F], we find that the evidence supports Petitioner's argument that one skilled in the art would have been motivated, in view of Trevarthen, to provide a logical expression for identifying illness as a logical value, using sensed and stored animal information as variables. *See supra.* We further find that the evidence supports the conclusion that one skilled in the art would include stored animal health information in the logical expression for

identifying animal illness. *See* Ex. 1003 ¶¶ 133–135; Ex. 1005, 1, 18, 115, 121.

Id. at 40.

Patent Owner argues that the cited evidence “refer[s] only to alleged expressions that use ‘temperature’ and ‘milk production’ as inputs, not ‘treatments,’” and “never mention[s] Trevarthen’s treatment log, let alone address Patent Owner’s argument that it would not be used in a logical expression.” DR Request 8. We agree.

Dr. Brown-Brandl identifies treatment information in livestock databases, but then only asserts that “Trevarthen renders obvious solving a logical expression by entering *temperature* and *milk production information* into a logical expression that solves for a logical value indicating an occurrence of illness.” Ex. 1003 ¶ 135 (emphasis added); Ex. 1003 ¶¶ 133–135. Dr. Brown-Brandl, however, does not testify that it would have been obvious to include *treatment information* in the logical expression, or explain how or why one might have used the treatment information in a logical expression to indicate illness. This is in contrast to the analysis provided for claim 1, where Dr. Brown-Brandl explained how the use of both temperature and milking information would have provided an advantage over either used alone.

The only other evidence cited by the Board as supporting the finding for claim 4 simply indicates that treatment information can be stored, that preventing illness is generally desirable, that milking information may be used to detect illness, and that temperature may also be used to detect illness. *See* Ex. 1005, 1 (“Such systems empower authorities . . . to take prompt and direct action to reduce the possibility of a disease outbreak.”), 18 (“The need to control disease outbreaks is obvious.”), 93 (disclosing that herd-

management software “includes the ability to store data on a range of characteristics for each cow, such as . . . treatments (such a[s] penicillin”)), 115 (“For example, if a cow provides a significantly lower amount of milk than their usual output, the system will be able to identify this disparity and alert the operators to check this cow when milking has completed. In this way, any illnesses or problems occurring with cows can be identified quickly and easily, subsequently enabling rapid treatment.”), 121 (“[F]luctuations in the body temperature of a cow can indicate that the cow may be falling ill.”). None of this material tends to show how or why it would have been obvious to use treatment information in a logical expression to indicate illness.

Petitioner attempts to support the Board’s conclusion for claim 4, arguing that “[c]ritically, in connection with limitations 1[E] and 1[F], the Board explained that the record as a whole supports that one skilled in the art would “assess[] multiple parameters for identifying illness.” DR Response 4 (citing Decision 37 (citing Ex. 1023, 4:13–44)). This is unpersuasive because the quotation from the Decision was taken from the Board’s discussion of claim 1, which only concerned the sensed temperature and milking information, not treatment information. Moreover, the excerpt appears in the portion of the decision discussing whether there would have been a reasonable expectation of success in using both temperature and milking information. That analysis does not support a conclusion that it would have been obvious to use treatment information in a logical expression to indicate illness.

For these reasons, we conclude that the record does not support a finding that the subject matter of claim 4 would have been obvious in view

of Trevarthen and, accordingly, we do not sustain the Board’s determination that claim 4 would have been unpatentable in view of Trevarthen.

Patent Owner asserts that the Board’s unpatentability determination for claim 18 was based on a mistaken understanding that Patent Owner relied on its claim 1 arguments, instead of its claim 4 arguments, for claim 18. *See* DR Request 5–6. Petitioner agrees. *See* DR Response 11. We also agree and find that, consistent with our discussion of claim 4, corresponding claim 18 has not been shown to be unpatentable. We, thus, do not sustain the Board’s unpatentability findings for claim 18 and dependent claims 19 and 20.

B. Laitinen Grounds: Claims 4, 6, and 18–20

Patent Owner argues that “[t]he Board’s analysis of the ‘health information’ and ‘occurrence of an illness’ limitations under the Laitinen-based grounds mirrors the deficient analysis it provided for the Trevarthen grounds.” DR Request 6.

The Board’s analysis for claim 4 for the Laitinen grounds did track the analysis for the Trevarthen grounds. The Board first found that Laitinen taught or suggested “using stored health data for health care services.” *See* Decision 72–73. The Board further found:

As discussed above as to limitations 1[E] and 1[F] with respect to this combination, we find that the evidence supports Petitioner’s argument that one skilled in the art would have been motivated to combine Laitinen and Liao to provide a logical expression for identifying illness as a logical value, using sensed and stored animal information as variables. *See supra* (citing Ex. 1006, 4:60–64, 7:4–13, 7:35–55; Ex. 1010, 6:31–7:6). We further find that the evidence supports the conclusion that one skilled in the art would have included stored animal health data in the logical expression for

identifying animal illness, thereby providing remote health care services. *See* Ex. 1003 ¶¶ 198–199.

Decision 73.

Regarding the use of stored animal health data in the logical expression, the Board cited only paragraphs 198 and 199 of Dr. Brown-Brandl’s declaration. Paragraph 198 explains that Laitinen describes storing animal health information in the database, and paragraph 199, which is similar to paragraph 135 discussing Trevarthen, only states that “Laitinen renders obvious solving a logical expression by entering *temperature* and *milk production information* into Laitinen’s second logical expression to solve for a logical value indicating an occurrence of illness and the appropriate medical treatment.” Ex. 1003 ¶ 199 (emphasis added).

Dr. Brown-Brandl does not assert that it would have been obvious to include *animal health information* in the logical expression or explain how or why one might have used that type of information in a logical expression to indicate illness. This can be contrasted with the discussion of claim 1, where Dr. Brown-Brandl explained how the use of both temperature and milking information would have provided an advantage of either used alone. *See* Ex. 1003 ¶ 188 (“For example, a temperature above the upper limit combined with decreased milk production would tend to indicate illness is highly likely, whereas decreased milk production without elevated temperature may suggest another issue, for example a need to change feed.”).

Petitioner argues that “the Board reasonably referred back to its detailed discussion of limitations 1[E] and 1[F] concerning logical expressions in Laitinen and Liao, and concluded that ‘one skilled in the art would have included stored animal health data in the logical expression for identifying animal illness, thereby providing remote health care services.’”

DR Response 7 (citing Decision 73). This is unpersuasive because it simply repeats the Board’s conclusion, and fails to identify any support for that conclusion in the record.

For these reasons, we conclude that the record does not support a finding that the subject matter of claim 4 would have been obvious in view of Laitinen, Buchanan, and Liao, and thus, do not sustain the finding that claim 4 would have been unpatentable in view of those references.

Unlike under the Trevarthen grounds, claim 6 was found unpatentable as obvious in view of Laitinen, Buchanan, and Liao. Claim 6, however, depends from claim 4 and, thus, has not been shown to be unpatentable as a result of its dependency.

Patent Owner asserts that the Board’s unpatentability finding for claim 18 was based on a mistaken understanding that Patent Owner relied on its claim 1 arguments, instead of its claim 4 arguments, for claim 18. *See* DR Request 5–6. Petitioner agrees. *See* DR Response 11 (“Petitioners do not dispute that Patent Owner cross-referenced its arguments regarding claim 4 in addressing claim 18.”). As with the Trevarthen grounds, and consistent with our discussion of corresponding claim 4, we find that claim 18 has not been shown to be unpatentable as obvious in view of Laitinen and Brune³ and do not sustain the Board’s unpatentability findings for claim 18 and its dependent claims 19 and 20.

³ Brune (Ex. 1008) is cited for its “disclosure of transmitting date/time-stamped animal temperature data from an implanted bolus” (Pet. 58) and is not alleged to teach or suggest use of health information in a logical expression.

III. CONCLUSION

For the reasons discussed above, we do not sustain the Board's determination that Petitioner has shown claims 4, 6, and 18–20 unpatentable. We do not disturb the Board's findings regarding claims 1–3 and 17.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Board's Final Written Decision is modified to conclude that claims 4, 6, and 18–20 have not been proven to be unpatentable; and

FURTHER ORDERED that the Board's Final Written Decision is maintained in all other respects.

The following table summarizes the results after this Director Review decision:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–4, 6	103(a)	Trevarthen	1–3	4, 6
17–20	103(a)	Trevarthen, Brune	17	18–20
1–4, 6	103(a)	Laitinen, Buchanan, Liao	1–3	4, 6
17–20	103(a)	Laitinen, Brune	17	18–20
Overall Outcome			1–3, 17	4, 6, 18–20

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