UNITED STATES PATENT AND TRADEMARK OFFICE

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte FRANK BERGHOF

Appeal 2017-007081
Application 14/007,111[1]
Technology Center 2800

Before KAREN M. HASTINGS, N. WHITNEY WILSON, and
BRIAN D. RANGE, *Administrative Patent Judges.*

HASTINGS, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant requests our review under 35 U.S.C. § 134 of the Final

Rejection of claims 1–20 under 35 U.S.C. § 101 because the claimed

invention is directed to non-statutory subject matter.[2] We have jurisdiction

under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] AVL Test Systems is identified as the real party in interest. Appeal Br. 3.
[2] The Examiner withdrew the § 103 rejections that were made in the Final
Action (Ans. 2).

THE INVENTION

Claim 17,[3] reproduced below, is illustrative of the subject matter on appeal.

> A method of determining an inverse convolution function for use in correcting a response of an emissions measurement instrument having an inherent transient response, the method comprising:
>
> storing in memory an idealized convolution function, the idealized convolution function being in the time domain and representing the transient response of the instrument;
>
> providing the idealized convolution function to a processor;
>
> transforming the idealized convolution function from the time domain to the frequency domain using the processor;
>
> dividing a regularizing filter function by the transformed idealized convolution function using the processor, the result of the division being the inverse convolution function in the frequency domain; and
>
> transforming the inverse convolution function from the frequency domain to the time domain using the processor.

Appeal Br. 21 (Claims Appendix).

Independent claim 1 is directed to a "method of correcting a response of an emissions measurement instrument" using an inverse convolution function similar to that of claim 17 (Appeal Br. 17, Claims Appendix).

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[3] While the Examiner addresses a proposed amendment for claims 1 and 17 in the Amendment After Final, filed 10/05/2016, that proposed amendment is not before us (Ans. 3; Reply Br. 7 (Appellant recognizes that the claims do not recite the proposed amendment)).

Appellant argues claims 1–20 as a group, and does not separately argue any claim (Appeal Br. 7–13).

Accordingly, we have selected independent claim 17 as representative.

ANALYSIS

The rejection under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Alice Corp. Pty. Ltd. v. CLS Bank International, 134 S. Ct. 2347 (2014), identifies a two-step framework for determining whether claimed subject matter is judicially-excepted from patent eligibility under § 101.

According to *Alice* step one, "[w]e must first determine whether the claims at issue are directed to a patent-ineligible concept," such as an abstract idea. *Alice*, 134 S. Ct. at 2355. In that regard, the Examiner determined that the claims are directed to mathematical relationships and conversions of the convolution function and concluded that the subject matter of the claims is directed to the judicial exception of abstract ideas. Final Act. 2–4.

The Appellant challenges the Examiner's articulation of what the claims are directed to, but the challenge is unfounded. *See* Appeal Br. 6–8. For example, the fact that the claims are drafted to correct a response of an emissions measurement instrument having an inherent transient response is not dispositive. The question is what the claims are "directed to."

> [T]he "directed to" inquiry applies a stage-one filter to claims, considered in light of the specification, based on whether "their character as a whole is directed to excluded subject matter." *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343,

1346 (Fed. Cir. 2015); *see Genetic Techs. Ltd. v. Merial L.L.C.,* 818 F.3d 1369, 1375, 2016 WL 1393573, at *5 (Fed. Cir. 2016) (inquiring into "the focus of the claimed advance over the prior art").

Enfish, LLC v. Microsoft Corp., 822 F.3d 1327, 1335 (Fed. Cir. 2016). "The 'abstract idea' step of the inquiry calls upon us to look at the 'focus of the claimed advance over the prior art' to determine if the claim's 'character as a whole' is directed to excluded subject matter." *Affinity Labs of Texas v. DIRECTTV, LLC,* 838 F.3d 1253, 1257 (Fed. Cir. 2016) (quoting *Elec. Power Grp., LLC v. Alstom S.A.,* 830 F.3d 1350, 1353 (Fed. Cir. 2016)). "In determining the eligibility of respondents' claimed process for patent protection under § 101, their claims must be considered as a whole." *Diamond v. Diehr,* 450 U.S. 175, 188 (1981).

As set out in the Background section of Appellant's Specification, it was known to perform a process called deconvolution to reverse, or correct, the effects of convolution. The claims are directed to transforming an idealized convolution function from a time domain to a frequency domain and generating an inverse convolution function by dividing a regularizing filter function by the transformed idealized convolution function.

Accordingly, the claims as a whole, in light of the Specification, are directed to generating a mathematical function, which is consistent with the Examiner's position (Final Act. 2–4). There appears to be no dispute that establishing the inverse convolution function is an abstract idea (Reply Br. 3, admitting "[w]hile convolution is a mathematical process" and Appeal Br. 10, admitting that "even if the claims were directed to an abstract idea, claims 1 and 17 contain limitations that amount to significantly more").

Step two is "a search for an 'inventive concept'—*i.e.*, an element or combination of elements that is 'sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.'" *Alice*, 134 S. Ct. at 2355 (alteration in original) (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 72–73 (2012)). In this regard, the Examiner determined that, generically linking the use of a judicial exception to a particular technological environment or field of use is insufficient because there are no additional elements that would "amount to significantly more than the judicial exception since all steps are only directed to mathematical determinations or transformations" (Final Action 3–4) and finally that "providing a response or any signal to a processor and using a processor in a mathematical process is routine and conventional, especially when claimed at this high level of generality" (Final Action 4; *see also* Ans. 2–3). The claims employ conventional devices (emissions measurement instrument, processor in claim 1 and emissions measurement instrument, processor and memory in claim 17) for performing their common functions.

The Specification supports the view that said processors, memory, and instruments are conventional. Appellant admits that the elements in claims 1 and 17 refer to the controller disclosed in the Specification (Appeal Br. 10 disclosing "claims 1 and 17 improve the way that a controller (e.g., a processor and memory)"). The Specification discloses that the controller "may be any type of known computer" and is "configured to perform each of the calculations in the steps" (*see, e.g.*, Spec. ¶ 16). *Cf. Alice*, 134 S. Ct. 2358 (citation omitted). "[T]he mere recitation of a generic computer cannot

transform a patent-ineligible abstract idea into a patent-eligible invention.
Stating an abstract idea 'while adding the words "apply it'' is not enough for
patent eligibility." *Id.* In addition, the Specification recites that "[t]he
disclosed method can further be used to deconvolute data from any
measurement instrument for which a convolution curve can be determined"
(Spec. ¶ 18).

The Appellant further argues that the present invention is not simply
the application of a mathematical relationship because "the methods of
claims 1 and 17 improve the way that a controller (e.g., a processor and
memory) records the response of an emissions measurement instrument to a
sample of exhaust gas" (Appeal Br. 10), similar to the claims in *Enfish*
which were held to improve computer functionality (*id*). A preponderance
of the evidence supports the Examiner's position that Appellant's mere
assertion that the claims generically improve measurement instrument or
controller operation is not meaningful, as "transforming the inverse
convolution function from the frequency domain to the time domain using
the processor" as recited in the final line of claim 17 does not specifically
explain the use of the derived result/indicia to improve the machine
functionality (e.g., Final Action 4; Ans. 2–3). Indeed, the Specification
explains that the step of converting the inverse convolution function into the
time domain is "by way of an inverse Fourier transformation" (Spec. ¶ 35).
Notably the claims end with this mathematical calculation and do not recite
any use or transmission/output of the converted inverse convolution function
after the calculation is performed. This supports the Examiner's
determination that Appellant's claimed improvement is actually simply

using memory and a processor to "perform the mathematical determination
of the claimed convolution" because the claims do not recite "an
improvement to a computer" (Ans. 2).

In addition, the Appellant also argues that the present invention is not
simply mathematical determinations because the method "is directed to a
method of improving the accuracy of an emissions measurement instrument
by mitigating the effect of the instrument's transient response on the
recorded response (i.e., the emissions measurement that is stored in
memory)" (Reply Br. 3), similar to the claims in *Thales Visionix Inc. v.
United States*, 850 F.3d 1343 (Fed. Cir. 2017), which were held to reduce
errors in measuring the relative position and orientation of a moving object
on a moving reference frame (*id.* at 1348–49). However, the claims in
Thales differed from Appellant's claims in that they comprised "the
unconventional utilization of inertial sensors" (*id.* at. 1349) operating in a
"non-conventional manner" (*id.* at 1349–1350), whereas Appellant's claims
comprise conventional processors, memory, and measurement equipment.
Therefore, the claims in *Thales* were found to be patent eligible because the
claims recited an "unconventional configuration of sensors" (*id.* at 1349), or
non-generic machines, being used in an unconventional manner, while, as
correctly pointed out by the Examiner, Appellant's claims comprise generic
computer systems (Ans. 2–3).

Finally, Appellant argues that the claims comprise significantly more
than the abstract idea because "the Examiner acknowledges that the cited art
does not disclose an inverse convolution function that represents the
transient response of the instrument" (Reply Br. 4; *see also* Appeal Br. 11–

13 & Reply Br. 6, 8). However, a finding of novelty or nonobviousness does not necessarily lead to the conclusion that subject matter is patentable eligible. "Groundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry." *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 591 (2013). The question in step two of the *Alice* framework is not whether an additional feature (i.e., the calculation) is novel but whether the implementation of the abstract idea involves "more than [the] performance of 'well-understood, routine, [and] conventional activities previously known to the industry.'" *Content Extraction and Transmission LLC v. Wells Fargo Bank, Nat. Ass'n*, 776 F.3d 1343, 1347–48 (Fed. Cir. 2014) (quoting *Alice*, 134 S. Ct. at 2359) based upon whether "[t]aking the claim elements separately, the function performed by the computer at each step of the process is '[p]urely conventional.'" *Alice*, 134 S. Ct. at 2359 (citing *Mayo*, 566 U.S. at 66). *Cf. Alice*, 134 S. Ct. at 2359 ("Considered 'as an ordered combination,' the computer components of petitioner's method 'ad[d] nothing . . . that is not already present when the steps are considered separately.") In Appellant's claims, the memory performs the generic functionality of storing and providing the mathematical function to the processor, while the processor performs the generic functionality of performing mathematical computations with the mathematical function. Regardless of whether the mathematical function itself is novel, the functionality performed by the processor is generic. As such, the novelty of the claims does not comprise significantly more than the abstract idea because Appellant's Specification and claims support a view that the memory and processor act merely as a platform or

conduit for the data-manipulating abstract idea. *Cf. In re TLI Communications LLC Patent Litigation*, 823 F.3d 607, 612 (Fed. Cir. 2016).

For the foregoing reasons, the Appellant has not shown error in the Examiner's *Alice* step two determination that the claims do not include an element or combination of elements sufficient to ensure that in practice they amount to significantly more than to be upon the ineligible concept itself.

The remaining arguments have been carefully considered but are unpersuasive as to error in the rejection.

The rejection of claims 1–20 under 35 U.S.C. § 101 as being directed to non-statutory subject matter is sustained.

DECISION

The decision of the Examiner to reject claims 1–20 is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED