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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte THORSTEN KASTNER, JUERGEN HERRE, LEON TERENTIV, OLIVER HELLMUTH, JOUNI PAULUS, and FALKO RIDDERBUSCH

Appeal 2018-001246
Application 14/616,374[1]
Technology Center 2600

Before ERIC B. CHEN, MATTHEW R. CLEMENTS, and SCOTT E. BAIN, *Administrative Patent Judges*.

CLEMENTS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1–13. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] Appellants identify the real party in interest as "Fraunhofer-Gesellschaft zur Foerderung der angewandten Forschung e.V." App. Br. 3.

STATEMENT OF THE CASE

"The present invention relates to audio signal decoding and audio signal processing, and, in particular, to a decoder and methods for adapting audio information in spatial-audio-object-coding (SAOC)." Spec. p. 1, ll. 15–17. Claim 1 is reproduced below (disputed limitation in italics) and is the representative claim for both rejections on appeal (listed *infra*). *See* 37 C.F.R. 41.37(c)(1)(iv) (representative claims).

> 1. An apparatus for adapting input audio information, encoding one or more audio objects, to acquire adapted audio information, wherein the input audio information comprises two or more input audio downmix channels and further comprises input parametric side information, wherein the adapted audio information comprises one or more adapted audio downmix channels and further comprises adapted parametric side information, wherein the apparatus comprises:
>
> a downmix signal modifier for adapting, depending on adaptation information, the two or more input audio downmix channels to acquire the one or more adapted audio downmix channels, and
>
> a parametric side information adapter for adapting, depending on the adaptation information, the input parametric side information to acquire the adapted parametric side information,
>
> wherein the adaptation information comprises an adaptation matrix,
>
> wherein the downmix signal modifier is configured to adapt, depending on the adaptation matrix, the two or more input audio downmix channels to acquire the one or more adapted audio downmix channels,
>
> *wherein the parametric side information adapter is configured to adapt, depending on the adaptation matrix, the input*

> *parametric side information to acquire the adapted parametric side information,*
>
> wherein the apparatus is implemented using a hardware apparatus or using a computer or using a combination of a hardware apparatus and a computer.

App. Br. 20–21 (Claims Appendix).

THE REJECTIONS

Claims 1–13 stand rejected under 35 U.S.C. § 101 as directed to a judicial exception of statutory subject matter. Final Act. 2.

Claims 1–13 stand rejected under 35 U.S.C. § 102(b) as anticipated by Faller (US 2008/0130904 A1; published June 5, 2008). Final Act. 3–6.

REJECTION UNDER 35 U.S.C. § 101

A. Principles of Law

The Supreme Court has long held that "[l]aws of nature, natural phenomena, and abstract ideas are not patentable." *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S.Ct. 2347, 2354 (2014) (quoting *Assoc. for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S.Ct. 2107, 2116 (2013)). The "abstract ideas" category embodies the longstanding rule that an idea, by itself, is not patentable. *Alice Corp.*, 134 S.Ct. at 2354–55 (quoting *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972)).

In *Alice*, the Supreme Court sets forth an analytical "framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts." *Id.* at 2355. The first step in the analysis is to "determine whether the claims at issue are directed to one of those patent-ineligible concepts," such as an abstract idea. *Id.* If the claims are directed to a patent-

ineligible concept, the second step in the analysis is to consider the elements of the claims "individually and 'as an ordered combination'" to determine whether there are additional elements that "'transform the nature of the claim' into a patent-eligible application." *Id.* (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 79, 78 (2012)). In other words, the second step is to "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.'" *Id.* (quoting *Mayo*, 566 U.S. at 73.) The prohibition against patenting an abstract idea "'cannot be circumvented by attempting to limit the use of the formula to a particular technological environment' or adding 'insignificant postsolution activity.'" *Bilski v. Kappos*, 561 U.S. 593, 610–11 (2010) (internal citation omitted.)

B. Examiner's Findings

The Examiner finds claim 1 is "directed to mathematical calculations generating parametric information on downmixed signals" and "does[] not include additional elements that are sufficient to amount to significantly more than the judicial exception[.]" Final Act. 2. The Examiner elaborates:

> [C]laims that recite mathematical formulas on a general purpose computer, are not patent eligible[.] The current claimed steps of matrix calculations, downmixing, parametric side information, are mathematical calculations (abstract idea)[.] [T]he additional element(s) or combination of elements in the claim(s)[,] other than the abstract idea per se[,] amount(s) to no more than . . . conventional computer/hardware[.]

Ans. 3–4.

C. Step One

Appellants contend claim 1 "represents more than just a mathematical algorithm" (App. Br. 12) because:

> [The claimed] apparatus for adapting input audio information is a particular machine with a specific purpose (e.g., modifying input audio downmix channels according to the elements of the claim). The apparatus for adapting input audio information is not simply a generic computer structure that serves to perform generic computer functions that are well-understood, routine, and conventional activities previously known to the industry. The apparatus for adapting input audio information of claim 1 and the hardware elements associated with it represent meaningful limitations which transform the abstract idea into a patent eligible application of the abstract idea, such that the claim as a whole amounts to "significantly more" than the abstract idea itself.
>
> The apparatus for adapting input audio information of claim 1 represents "improvements to another technology of technical field". Specifically, claim 1 provides improvements to the field of audio signal processing, more specifically improvements to the field of audio decoding and high frequency reconstruction.

App. Br. 13. We are unpersuaded of error.

We agree with the Examiner that Appellants' claims are directed to an abstract idea of modifying (adapting) downmix signals and parametric side information "depending on" an undescribed adaptation matrix. Such modifying of signals and information via a matrix is plainly a mathematical process. *See, e.g.*, p. 3, ll. 1–26, p. 6, l. 17–18, p. 7, l. 14. There is no definitive rule to determine what constitutes an "abstract idea." Rather, the Federal Circuit has explained that "both [it] and the Supreme Court have found it sufficient to compare claims at issue to those claims already found

to be directed to an abstract idea in previous cases." *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1334 (Fed. Cir. 2016); *see also Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1294 (Fed. Cir. 2016) (explaining that, in determining whether claims are patent-eligible under § 101, "the decisional mechanism courts now apply is to examine earlier cases in which a similar or parallel descriptive nature can be seen—what prior cases were about, and which way they were decided"). The Federal Circuit also noted that "examiners are to continue to determine if the claim recites (i.e., sets forth or describes) a concept that is similar to concepts previously found abstract by the courts." *Amdocs*, 841 F.3d at 1294 n.2 (internal citation omitted.)

Here, the claims are similar to the claims that the Federal Circuit determined are patent ineligible in *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014) ("Without additional limitations, a process that employs mathematical algorithms to manipulate existing information to generate additional information is not patent eligible." The Federal Circuit has also held similar data manipulation claims to be directed to patent-ineligible abstract ideas — *see OIP Tech., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362–63 (Fed. Cir. 2015) (offer-based price optimization); *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1370 (Fed. Cir. 2015) (tailoring information presented to a user based on particular information); *Electric Power Group, LLC v. Alstom Ltd.*, 830 F.3d 1350, 1353–54 (Fed. Cir. 2016) (collecting information and "analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, [are] essentially mental processes within the abstract-idea category"); *Accenture Global Servs., GmbH v.*

Guidewire Software, Inc., 728 F.3d 1336, 1346 (Fed. Cir. 2013) (generating tasks in an insurance organization); and *Versata Dev. Grp. v. SAP Am.*, 793 F.3d 1306, 1333–34 (Fed. Cir. 2015) (price-determination method involving arranging organizational and product group hierarchies).

Appellants argue that the claimed invention more particularly performs audio signal processing, audio decoding, and high frequency reconstruction. App. Br. 13. Appellants do not show, however, that these features are indeed required by claim 1. *See Intellectual Ventures I LLC v. Symstic Corp.,* 838 F.3d 1307, 1322 (Fed. Cir. 2016*)* ("The district court erred in relying on technological details set forth in the patent's specification and not set forth in the claims to find an inventive concept.") (citing *Accenture Global Servs., GmbH v. Guidewire Software, Inc.*, 728 F.3d 1336, 1345 (Fed. Cir. 2013) ("[T]he important inquiry for a [section] 101 analysis is to look to the claim.")). Nor do Appellants show these features, even if recited (arguendo), do more than merely limit the claimed invention to a technological environment. *See Versata*, 793 F.3d at 1332 ("[P]atenting an ineligible concept cannot be circumvented by limiting the use of an ineligible concept to a particular technological environment."). Appellants merely allege these features are claimed and sufficient to overcome the judicial exception (using mathematical algorithms to manipulate information). *See In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997) (Mere conclusory statements hold little probative value.).

D. Step Two

Turning to the second step of the *Alice* inquiry, Appellants contend: "Assuming that the prior art rejections are overcome, the apparatus for adapting input audio information of claim 1 will by definition, because it is

novel and not-obvious, include at least one limitation other than what is well-understood, routine, and conventional in the field." App. Br. 13.

Even assuming that the methods and systems are not taught in the prior art, that is not dispositive because even a novel and nonobvious claim directed to a purely abstract idea is patent ineligible. *Mayo*, 132 S. Ct. at 1304. *See also Berkheimer*, 881 F.3d at 1370 (holding claim ineligible where "[t]he limitations amount to no more than performing the abstract idea with conventional computer components."); *see also SAP Am., Inc. v. Investpic, LLC*, 890 F.3d 1016, 1018 (Fed. Cir. 2018) ("The claims here are ineligible because their innovation is an innovation in ineligible subject matter."); *compare Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016) ("[A]n inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces."). Appellants do not contend, much less show, claim 1 recites a novel feature that is not part-and-parcel of the claimed abstract idea.

We find nothing in the claims that adds anything "significantly more" to transform the abstract idea of modifying (adapting) downmix signals and parametric side information "depending on" an adaptation matrix. *Alice*, 134 S. Ct. at 2357. Beyond that abstract idea, the claims merely recite "'well-understood, routine, conventional activit[ies],'" such as implementing the apparatus using hardware or a computer or a combination of both. *Alice*, 134 S. Ct. at 2359 (quoting *Mayo*, 566 U.S. at 73). Appellants do not identify any error in the Examiner's findings regarding these routine elements. Considered individually or taken together as an ordered combination, the claim elements fail "to 'transform' the claimed abstract

idea into a patent-eligible application." *Id.* at 2357 (quoting *Mayo*, 566 U.S. at 72–73, 78).

E. Conclusion

Appellants present only the above arguments against the rejection of claims 1–13 under 35 U.S.C. § 101. For the foregoing reasons, we are not persuaded of error. Accordingly, we sustain the 35 U.S.C. § 101 rejection of representative claim 1 and claims 2–13 falling therewith.

REJECTION UNDER 35 U.S.C. § 102(b)

The disputed limitation of claim 1 is the "adapt[ing], depending on the adaptation matrix, [of] the input parametric side information." Appellants argue the Examiner erred by reading the claimed adaptation matrix and parametric side information respectively on Faller's scaling factors $e_i(k)$ and inter-channel level difference (ICLD) parameters. *See infra*. We address Appellants' arguments in turn.

A. Whether Faller Discloses Adapting Input Parametric Side Information "Depending On the Adaptation Matrix" Used to Adapt the Downmixing Channels

Appellants contend Faller does not disclose adapting ICLD parameters, which the Examiner identifies as teaching the recited "parametric side information" "depending on" the scaling factors $e_i(k)$, which the Examiner identifies as teaching the recited "adaptation matrix," as required by claim 1. App. Br. 17.

This argument is not persuasive because the Examiner did not read the claimed adaptation matrix only on Faller's scaling factors $e_i(k)$, but rather also on the scaling factors $a_i(k)$. Specifically, the Examiner finds Faller's downmixing channels and scaling factors $e_i(k)$ disclose the claimed

downmixing channels and adaptation matrix, respectively (Final Act. 3; Ans. 9), and finds that Faller's ICLD parameters and scaling factors $a_i(k)$ disclose the claimed parametric side information and its corresponded adaptation matrix information, respectively (Final Act. 7; Ans. 9–10). Thus, the Examiner identifies scaling factors $e_i(k)$ and *scaling factors $a_i(k)$* collectively as the recited "adaptation matrix." Ans. 9–10.

Appellants argue that "claim 1 requires that the input parametric side information is adapted by exactly the same adaptation matrix that is used to adapt the input audio downmix channels." App. Br. 17. This argument is not persuasive because it is not commensurate with the scope of claim 1, which requires only that the adapting "depend[] on" the adaptation matrix, not that the downmixing channels and the parametric side information be multiplied by exactly the same matrix. We agree with the Examiner that Faller discloses scaling of downmixing channels "depending on" the adaptation matrix insofar as it uses scaling factors $e_i(k)$ and scaling of ICLD "depending on" the adaptation matrix insofar as it uses the scaling factors $a_i(k)$. Appellants, therefore, do not show the Examiner erred in finding Faller's ICLD parameters depend on the scaling factors $a_i(k)$ and thereby disclose the claimed "adapt[ing], depending on the adaptation matrix, [of] the input parametric side information."

B. Whether Faller's Scaling Factors Disclose a "Matrix"

Appellants also contend "it is debatable, whether the scaling factors $e_i(k)$ really constitute an adaptation matrix [and] Faller does not mention that the scaling factors would define a matrix." App. Br. 16.

This argument is not persuasive because it is conclusory. That Faller does not call its scaling factors $e_i(k)$ a "matrix" is immaterial. *See In re*

Bond, 910 F.2d 831, 832–33 (Fed. Cir. 1990) (For anticipation, the prior art "elements must be arranged as in the claim under review, . . . but this is not an 'ipsissimis verbis' test."). As no further contentions are provided, e.g., a meaning of "matrix" to compare against Faller's disclosure, we are presented only a prima facie case and no meaningful rebuttal. *See In re Jung*, 637 F.3d 1356, 1362–63 (Fed. Cir. 2011) (requirements for a prima facie case of anticipation).

Moreover, Appellants do not address the Examiner's finding that, under broadest reasonable interpretation, even $e_i(k)$ alone constitutes a "1 x 'i^{th}' matrix." Ans. 9. We are aware of no reason, and none is provided, that Faller's scaling factors $e_i(k)$ and $a_i(k)$ cannot be reasonably interpreted as constituting a single matrix, e.g., a matrix $[e_i(k), a_i(k)]$ having "i" quantity of rows.

C. Conclusion

Appellants present only the above arguments against the rejection of claims 1–13 under 35 U.S.C. § 102(b). For the foregoing reasons, we are not persuaded of error. Accordingly, we sustain the 35 U.S.C. § 102(b) rejection of representative claim 1 and of claims 2–13 falling therewith.

DECISION

We affirm the Examiner's decision rejecting claims 1–13.

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