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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte STIG LINDEMANN and
MADS KOLDING NIELSEN

Appeal 2017-000940
Application 13/054,152
Technology Center 2800

Before BRADLEY R. GARRIS. MICHAEL P. COLAIANNI, and MERRELL C. CASHION, JR., *Administrative Patent Judges*.

CASHION, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants[1] appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1, 5–8, 12–14, and 25–28. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

[1] The real party in interest is identified as Micro Motion, Inc. App. Br. 1.

STATEMENT OF THE CASE

Claim 1 is illustrative of the subject matter on appeal and is reproduced below:

1. A data translation system (100) for performing a non-linear data translation on a digitized AC signal, the translation system (100) comprising:

an input for receiving the digitized AC signal;

an output for outputting a non-linearly translated signal; and

a processing system (104) coupled to the input and to the output and configured to receive the digitized AC signal, non-linearly translate the digitized AC signal using a predetermined transfer function to create the non-linearly translated signal, wherein the predetermined transfer function creates the non-linearly translated signal with respect to a reference point and wherein the predetermined transfer function is configured to alternatively compress or amplify digital values of the digitized AC signal in relation to a distance from the reference point, and transfer the non-linearly translated signal to the output;

wherein the reference point is an AC signal zero-crossing point of the received digitized AC signal that is shifted one of above and below a zero voltage level.

REJECTIONS

Appellants (App. Br. 1, 3) request review of the following rejections from the Examiner's Final Action dated October 29, 2015:

I. Claims 1, 5, 6, 8, 12, 13, and 25–28 rejected under 35 U.S.C. § 101 because the claimed invention is directed to a judicial exception (i.e., a

law of nature, a natural phenomenon, or an abstract idea) without significantly more.[2]

II. Claims 1, 5–8, 12–14, and 25–28 rejected under 35 U.S.C. § 103(a) as unpatentable over Betts (US 4,037,226, issued July 19, 1977), Gingell (US 4,288,873, issued September 8, 1981), and Thyssen (US 6,618, 700 B1, issued September 9, 2003).[3]

ANALYSIS

Rejection under 35 U.S.C. § 101 (ineligible subject matter)

Appellants rely on the same line of arguments in addressing the rejection of independent claims 1 and 8 and do not present separate arguments for claims 5, 6, 12, 13, and 25–28. *See generally* App. Br. Accordingly, we select claim 1 as representative of the claimed subject

[2] We adopt Appellants' statement of rejection under 35 U.S.C. § 101 because it correctly reflects claim 8 instead of claim 7 as a rejected claim. App. Br. 3–4; Final Act. 2, 6. The Examiner's statement of rejection in the Final Action erroneously includes claim 7 and excludes claim 8. Final Act. 2. The Examiner further erroneously states in the Final Action that claim 8, instead of claim 7, is no longer subject to this ground of rejection. *Id*. at 5. However, the Examiner correctly addresses claim 8 as a rejected claim in the response to the §101 arguments. Ans. 2–3. The Examiner further states that claim 14 is no longer rejected under § 101 (Final Act. 5). Therefore, we find the omission of claim 8 and the inclusion of claim 7 in the statement of rejection in the Final Action to be harmless error. Accordingly, only claims 1, 5, 6, 8, 12, 13, and 25–28 are before us for review on appeal for this rejection.

[3] The prior art rejection statement has been modified to include claims 25–28, which were erroneously omitted by the Examiner. Final Act. 3, 5. The Examiner addressed the omitted claims on page 5 of the Final Action. Appellants recognize that the omitted claims were subject to the appealed rejection on page 18 of the Appeal Brief. Therefore, we find this omission to be harmless error. Accordingly, claims 1, 5–8, 12–14, and 25–28 are before us for review on appeal for this rejection.

matter for review on appeal for this rejection. Claims 5, 6, 8, 12, 13, and 25–28 stand or fall with claim 1.

This rejection is based on the Examiner's determination that the subject matter of claim 1 is directed to ineligible subject matter because it recites a mathematical function, an abstract idea which is a judicial exception under 35 USC § 101. Final Act. 2. According to the Examiner, the data translation is not applied to any particular product and appears directed to any and all uses of any non-linear transfer function. *Id*. The Examiner also determines that claim 1 does not include additional elements that are sufficient to amount to significantly more than the judicial exception. *Id*.

In *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355 (2014), the Supreme Court reiterated the following two-step analysis (previously set forth in *Mayo Collaborative Services v. Prometheus Labs.*, Inc., 132 S. Ct. 1289, 1300 (2012)) for distinguishing patents that claim patent-ineligible laws of nature, natural phenomenon, and abstract ideas from those that claim patent-eligible applications of those concepts:

> First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts. If so, we then ask, what else is there in the claims before us? . . . We have described step two of this analysis as 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.

The Supreme Court in *Alice Corp. v. CLS Bank International*, 134 S. Ct. 2347 (2014) reiterated the framework set out in *Mayo Collaborative Services v. Prometheus Labs. Inc.*, 132 S. Ct. 1289 (2012) for "distinguishing patents that claim . . . abstract ideas from those that claim patent-eligible applications of those concepts." *Alice*, 134 S. Ct. at 2355. The first step in the analysis is to determine if the claim is directed toward a patent-ineligible concept and, if so, the second step is to determine whether there are additional elements that transform the nature of the claim into a patent eligible application. *Alice*, 134 S. Ct. at 2355 (citing *Mayo*, 132 S. Ct. at 1297–98). The second step searches for an inventive concept that is sufficient to ensure that the patent amounts to significantly more than a patent on the patent-ineligible concept. *Alice*, 134 S. Ct. at 2355 (citing *Mayo*, 132 S. Ct. at 1294).

Appellants argue independent claim 1 is not a patent ineligible abstract idea because it addresses the technological problem of preserving phase information while decreasing bandwidth when compressing or amplifying digital values of the digitized AC signal. App. Br. 4–5.

We are unpersuaded by this argument. As noted by the Examiner, and Appellants do not dispute, the step of non-linearly translating a digitized signal using a transfer function to create a non-linearly translated signal involves using math to convert a digitized signal into a non-linearly translated signal. Ans. 2–3; *see generally* App. Br.; *see also* Spec. 8; ("The

transfer function *can comprise a mathematical function* that translates the digitized AC signal. Alternatively, the transfer function *can comprise a series of coefficients that are multiplied by the digitized AC signal*, essentially a digital filter" (emphasis added)). A mathematical formula is judicially recognized as patent ineligible subject matter. *See Parker v. Flook*, 437 U.S. 584, 585–86, 59495 (1978). Moreover, a patent-ineligible abstract idea of a mathematical formula is not transformed into a patent-eligible invention by "limiting the use of an abstract idea 'to a particular technological environment."' *Alice*, 134 S. Ct. at 2358, quoting *Bilski v. Kappos*, 561 U.S. 593, 610–11 (2010). As also noted by the Examiner, the preservation of phase information appears to be merely retaining the signal bit. Ans. 2. That is, there is no language in the claim that indicates how the translated signal (compressed/amplified values) resulting from the transfer function (mathematical formula) is used. Thus, Appellants have not established error in the Examiner's determination that the subject matter of representative claim 1 is directed to a judicial exception (an abstract idea in the form of a mathematical function) under the first step of Alice.

While Appellants argue that claims 7 and 14 serve as evidence of patent eligibility (App. Br. 6–7), we note that these claims were withdrawn from this rejection because they, unlike the broader subject matter of claim 1, positively recite a reduction of signal bandwidth. Ans. 5.

The first threshold under Alice is met. We now turn to the second step under Alice to consider if there is an inventive concept that is sufficient to ensure that the patent amounts to significantly more than a patent on the

patent-ineligible concept. *Alice*, 134 S. Ct. at 2355 (citing *Mayo*, 132 S. Ct. at 1294).

Appellants argue, even if the claims are considered to be an abstract idea, the claims are substantially more because the claims do not attempt to preempt all possible uses of a transfer function. App. Br. 5–6.

We have considered this argument and are unpersuaded by it for the reasons presented by the Examiner. Ans. 3. Appellants' argument is premised on the mathematical function that compresses or amplifies the digital values of the digitized AC signal. App. Br. 6. However, Appellants do not direct us to "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. That is, Appellants do not adequately explain how the translation of the signal amounts to significantly more than a patent upon the ineligible concept itself. Thus, Appellants have not established error in the Examiner's determination that the subject matter of representative claim 1 lacks additional elements that transforms the subject matter of the claim into a patent-eligible application under the second step of Alice. Ans. 3.

Accordingly, we affirm the Examiner's rejection of claims 1, 5, 6, 8, 12, 13, and 25–28 under 35 U.S.C. § 101 for the reasons presented by the Examiner and given above.

Prior Art Rejection under 35 U.S.C. § 103(a)

For the prior art rejection, Appellants rely on the same line of arguments in addressing the rejection of independent claims 1 and 8 and do not present separate arguments for claims 5–7, 12–14, and 25–28. *See generally* App. Br. Accordingly, we select claim 1 as representative of the claimed subject matter for review on appeal for this rejection. Claims 5–8, 12–14, and 25–28 stand or fall with claim 1.

The subject matter of representative claim 1 is directed to a data translation system used to perform a non-linear data translation on a digitized AC signal. App. Br. 2–3.

The Examiner finds Betts discloses a data translation system that differs from the claimed invention in that Betts does not disclose shifting a predetermined reference point one of above and below a zero voltage level. Final Act. 3–4; Betts Figures 1, 3, col. 1, ll. 24–31, col. 4 (Table). The Examiner finds Gingell and Thyssen disclose as known to shift a reference point by biasing the signal to reduce noise in a signal. Final Act. 4; Gingell Figure 1; col. 2, ll. 12–16, 52–62; Thyssen Figure 4, col. 2, ll. 52–60. The Examiner determines it would have been obvious to one skilled in the art to modify Betts by shifting the reference point as taught by Gingell and Thyssen. Final Act. 4–5.

Appellants argue the claimed shifting of the AC signal zero-crossing point (reference point) is not the same as adding a bias to a signal as alleged by the Examiner. App. Br. 8. According to Appellants, this interpretation is unreasonably broad because the interpretation includes a reference point of a

transfer function that is not the AC signal zero crossing point of a received digitized AC signal that is shifted one of above and below a zero crossing point. App. Br. 13. Appellants further contend that the bias added in Gingell is not to the AC signal zero crossing point of the signal received by the A law compressor because the filter 2 blocks any DC offset contained in the signal before reaching point 4 of Gingell's Figure 1. App. Br. 9; Gingell col. 2, ll. 7–16. That is, Appellants argue the signal subject to the added DC offset at point 4 is different from the one inputted in the vicinity of point 2. *See also* App. Br. 10–11.

We are unpersuaded by these arguments. As noted by the Examiner, Thyssen discloses that adding the constant causes the signal to shift away from zero. Ans. 4; Thyssen Figure 4 (*cf*. output 4 *with* output 23), col. 3, ll. 40–58. While Appellants argue that Thyssen applies a constant to output digital values within a certain range (App. Br. 11–12; Thyssen col. 3, ll. 11–26), Appellants have not adequately explained why this disclosure of Thyssen detracts from the broader teaching of applying a constant to shift a signal reference point as shown in Thyssen's Figure 4. With respect to the arguments concerning Gingell (App.Br. 9–11), it appears that Appellants are contending that Gingell discloses multiple shifting of the signal reference point. We note that the language of claim 1, drafted with the open transitional language of "comprising," does not exclude multiple shifting of the reference point. Thus, Appellants have not adequately explained why

one skilled in the art would not have arrived to the claimed invention from the combined teachings of the cited art.

We have considered Appellants' arguments that the combined teachings of Betts, Gingell, and Thyssen show the purported reference points are always zero. App. Br. 12–13. We are unpersuaded for the reasons presented by the Examiner (Ans. 5) and again direct Appellants attention to Thyssen teaching of shifting the reference point discussed above. Appellants, at most, have provided mere attorney arguments and such arguments of counsel cannot take the place of evidence. *See In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984); *In re Payne*, 606 F.2d 303, 315 (CCPA 1979). Moreover, the Examiner's rejection is based on a combination of teachings and these arguments do not address the Examiner's reasons for combining the cited art.

Appellants argue the Examiner did not address the limitation of "a predetermined transfer function configured to alternatively compress or amplify digital values of the AC signal." App. Br. 16. That is, the Examiner did not point out where the cited art teaches this claimed feature.

We find this argument unavailing. The Examiner determines that A-law and mu-law functions disclosed by the cited art (*see* Thyssen Figure 3 (encoder/decoder 14/16) and Gingell Figure 2) are well known companding functions that amplify small level signals and compress large level signals and, thus, the transfer function that compresses or amplifies the digitized values of an AC signal is not missing from the combined teachings of the

cited art. Ans. 5. Appellants have not pointed to error in the Examiner's determination.

Accordingly, we affirm the Examiner's prior art rejection of claims 1, 5–8, 12–14, and 25–28 for the reasons presented by the Examiner and given above.

DECISION

The Examiner's rejection under 35 U.S.C. § 101 is affirmed.

The Examiner's prior art rejection under 35 U.S.C. § 103(a) 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). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED