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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte EDWARD K. Y. JUNG, RODERICK A. HYDE,
JORDIN T. KARE, ERIC C. LEUTHARDT,
DENNIS J. RIVET, and LOWELL L. WOOD JR.

Appeal 2012-002201
Application 11/986,966¹
Technology Center 2100

Before BRUCE R. WINSOR, JOHN A. EVANS, and
JASON J. CHUNG, *Administrative Patent Judges*.

CHUNG, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) of the Final Rejection of claims 1, 43–70, 72, 75–83, and 85.² We have jurisdiction under 35 U.S.C. § 6(b).

We affirm and enter a new ground of rejection.

¹ According to Appellants, the real party in interest is Searete LLC, which is wholly owned by Intellectual Ventures Management LLC (App. Br. 5.)

² Claims 2–42, 71, 73, 74, and 84 were previously cancelled.

INVENTION

The invention is directed to receiving, calculating, and transferring epigenetic information. Spec. 3–4. Claim 1 is illustrative of the invention and reproduced below:

1. A computer-implemented method comprising:
receiving epigenetic information associated with at least one individual;
calculating, using a microprocessor, a risk utilizing the epigenetic information; and
transferring at least a portion of the risk utilizing the epigenetic information.

REFERENCE

Apfeld et al.	US 2006/0147947 A1	July 6, 2006
Kenedy et al.	US 2008/0228765 A1	Sept. 18, 2008

RELATED APPEALS AND INTERFERENCES

Appellants do not identify any related appeals. *See* App. Br. 6. However, we note that there are at least seven related appeals, which are: appeal No. 2012-004467 (Application No. 12/012,701); appeal No. 2012-004555 (Application No. 11/906,995); appeal No. 2012-004590 (Application No. 11/974,166); appeal No. 2012-009645 (Application No. 11/986,986); appeal No. 2012-011303 (Application No. 11/986,967); appeal No. 2013-004647 (Application No. 12/079,589); and appeal No. 2013-007816 (Application No. 12/004,098).

REJECTIONS AT ISSUE

Claims 43–70, 72, 75–83, and 85 are rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Ans. 4–5.

Claims 43–70, 72, 75–83, and 85 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite. Ans. 5–6.

Claims 43, 48, 55, 56, and 58 are rejected under a provisional non-statutory obviousness-type double patenting rejection over Application 11/906,995.³ Ans. 6.

Claims 1, 43–56, 58–59, 64, and 85 are rejected under 35 U.S.C. § 102(e) as anticipated by Kenedy.⁴ Ans. 7–9.

Claims 57, 60–63, 65–70, 72, and 75–82 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kenedy. Ans. 10.

ISSUES⁵

Did the Examiner err in finding that claims 43–70, 72, 75–83, and 85 are directed to non-statutory subject matter?

³ Application No. 11/906,995 is pending. Thus, we do not reach the merits of the Examiner’s double patenting rejections because this issue is not ripe for decision by the Board. Panels have the flexibility to reach or not reach provisional double-patenting rejections. *See Ex parte Moncla*, 95 USPQ2d 1884 (BPAI 2010) (precedential).

⁴ The Examiner included claim 57 in the headings of the rejections under 35 U.S.C. §§ 102(e) and 103(a), but did not address claim 57 in the body of the rejection under 35 U.S.C. § 102 (e). Ans. 7–9. However, the Examiner included claim 57 in the body of the rejection under 35 U.S.C. § 103(a). Ans. 10. We deem this to be an inadvertent typographical error.

⁵ We considered the Appeal Brief filed May 9, 2011; the Examiner’s Answer mailed August 1, 2011; and the Reply Brief filed October 3, 2011. We have not considered the Supplemental Reply Brief, as it was untimely filed on October 28, 2011, more than two months after the date of the Examiner’s Answer. *See* 37 C.F.R. §§ 41.41 (a)(1) and (c). Furthermore, Appellants do not explain why the arguments included in the Supplemental Reply Brief could not have been included in the Reply Brief. We note that the Reply Brief and Appeal Brief were both filed after the March 28, 2011 decision in *In re Jung*, 637 F.3d 1356 (Fed. Cir. 2011).

Did the Examiner err in finding that claims 43–70, 72, 75–83, and 85 are indefinite?

Did the Examiner err in finding that Kenedy discloses the features of claims 1, 43, 48, 49, 58, and 85?

CONTENTIONS AND ANALYSIS

Rejection of Claims 43–70, 72, 75–83, and 85 under 35 U.S.C. § 101

The Examiner finds that claim elements are software per se and an abstract idea. Ans. 4–5. Appellants argue that the claims are directed to statutory subject matter because of the recited microprocessor and circuitry. App. Br. 17–18. We agree with the Examiner that the rejected claims recite an abstract idea.

Following the decision in *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S.Ct. 2347 (2014) (citing *Mayo Collaborative Services v. Prometheus Labs., Inc.*, 132 S.Ct. 1289, 1300 (2012)), we analyze claims where the abstract idea judicial exception to the categories of statutory subject matter is at issue using the following two-part analysis set forth in *Mayo*: 1) Determine whether the claim is directed to an abstract idea; and 2) if an abstract idea is present in the claim, determine whether any element, or combination of elements, in the claim is sufficient to ensure that the claim amounts to significantly more than the abstract idea itself. *See Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S.Ct. at 2350.

As to the first part of the analysis, examples of abstract ideas referenced in *Alice Corp.* include: fundamental economic practices;⁶ certain

⁶ *Alice Corp.*, at 2350: *e.g.*, intermediated settlement, *i.e.*, the use of a third party intermediary to mitigate settlement risk.

methods of organizing human activities;⁷ “an idea of itself;”⁸ and, mathematical relationships or formulas.⁹ Claims that include abstract ideas like these are examined under the second part of the analysis to determine whether the abstract idea has been applied in an eligible manner.

As to the second part of the analysis, we consider the claim as a whole by considering all claim elements, both individually and in combination. *Id.* at 2355. Limitations referenced in *Alice Corp.* that may be enough to qualify as "significantly more" when recited in a claim with an abstract idea include, as non-limiting or non-exclusive examples: improvements to another technology or technical fields;¹⁰ improvements to the functioning of the computer itself;¹¹ and meaningful limitations beyond generally linking the use of an abstract idea to a particular technological environment.¹²

Limitations referenced in *Alice Corp.* that are not enough to qualify as "significantly more" when recited in a claim with an abstract idea include, as non-limiting or non-exclusive examples: adding the words “apply it” (or an

⁷ *Id.*, at 2356: *e.g.*, a series of steps instructing how to hedge risk (citing *Bilski v. Kappos*, 561 U.S. 593, 599 (2010)).

⁸ *Id.*, at 2355: *e.g.*, a principle, an original cause, a motive (citing *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) and *Le Roy v. Tatham*, 14 How. 156, 175 (1853)).

⁹ *Id.*, at 2350: *e.g.*, a mathematical formula for computing alarm limits in a catalytic conversion process (*Parker v. Flook*, 437 U.S. 584, 594–595 (1978)), or a formula for converting binary-coded decimal numerals into pure binary form (*Benson*, 409 U.S. at 71–72).

¹⁰ *Id.*, at 2358: *e.g.*, a mathematical formula applied in a specific rubber molding process (citing *Diamond v. Diehr*, 450 U.S. 175, 177–178 (1981)).

¹¹ *Id.* at 2359.

¹² *Id.* at 2360: noting that none of the hardware recited “offers a meaningful limitation beyond generally linking ‘the use of the [method] to a particular technological environment,’ that is, implementation via computers” (citing *Bilski*, 561 U.S. at 610, 611).

equivalent) with an abstract idea;¹³ mere instructions to implement an abstract idea on a computer;¹⁴ or requiring no more than a generic computer to perform generic computer functions that are well-understood, routine and conventional activities previously known to the industry.¹⁵

If there are no meaningful limitations in the claim that transform the abstract idea into a patent eligible application such that the claim amounts to significantly more than the abstract idea itself, the claim is directed to non-statutory subject matter under 35 U.S.C. § 101.

Each of claims 43–70, 72, 75–83, and 85 recites a fundamental economic practice such as “calculating a risk utilizing the epigenetic information,”¹⁶ which is an abstract idea under the first step of the analysis. Next, we analyze the claims under the second part of the analysis and we find that the claims require no more than a generic computer to perform generic computer functions.

We also note that The Supreme Court held that “simply appending conventional steps, specified at a high level of generality, to laws of nature, natural phenomena, and abstract ideas cannot make those laws, phenomena, and ideas patentable.” *Mayo*, 132 S.Ct. at 1300.

Accordingly, for the reasons stated *supra*, we sustain the Examiner’s rejection of claims 43–70, 72, 75–83, and 85.

¹³ *Id.* at 2357, 2358.

¹⁴ *Id.*: *e.g.*, simply implementing a mathematical principle on a physical machine, namely a computer (citing *Mayo* 132 S.Ct., at 1301).

¹⁵ *Id.* at 2359: *e.g.*, using a computer to obtain data, adjust account balances, and issue automated instructions.

¹⁶ We note that the relationship epigenetic information and the risk of an individual developing a disease is a well-known natural phenomenon.

Rejection of Claims 43–70, 72, 75–83, and 85 under 35 U.S.C. § 112, second paragraph

The Examiner finds that claim elements reciting “means for” are means-plus-function limitations that invoke 35 U.S.C. § 112, sixth paragraph, and finds the written description fails to clearly link or associate a disclosed structure, material, or acts to the claimed function, so that one of ordinary skill in the art would recognize what structure, material or acts perform the function. *See* Ans. 6.

Appellants argue that there is support for the various recited “means for” limitations in the Specification, pointing to various passages and drawings in the Specification. App. Br. 18–20.

For a computer-implemented means-plus-function claim limitation invoking 35 U.S.C. § 112, sixth paragraph, the corresponding structure for performing a *specific function* must be more than simply a general purpose computer or microprocessor. *See In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303, 1316 (Fed. Cir. 2011). A computer-implemented means-plus-function term is limited to the corresponding structure disclosed in the specification and equivalents thereof, and the corresponding structure is the algorithm. *See Aristocrat Technologies Australia Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008).

We have reviewed the portions of the Specification cited by Appellants, and we find that the cited Specification portions adequately describe structures to support the claimed “means for.”

Moreover, the flow charts of Figures 2–11 restate the claimed means-plus-function elements and provide further specific details. For instance, in

Figures 2–11, the receiving, calculating, and transferring steps each have corresponding algorithms shown in more detail. Specifically, Figures 3–5 shows the receiving step 210 has a detailed algorithm. In addition, Figure 6 shows the calculating step 220 has a detailed algorithm shown in element 602. Also, Figures 7–11 shows the transferring step 230 has a detailed algorithm. Therefore, we find that the “means for” claim limitation has a corresponding detailed algorithm and is not indefinite.

Accordingly, for the reasons stated *supra*, we reverse the Examiner’s rejection of claims 43–70, 72, 75–83, and 85.

Rejection of Claims 1, 43–47, 50–57, 59–70, 72, 75–82, and 85 under 35 U.S.C. §§ 102(e) and 103(a)

Claim 1 is recited *supra*. The Examiner made explicit findings regarding the elements taught by the prior art, and explained how the elements are mapped to the respective claim elements of the appealed claims. Ans. 7 and 16. Appellants styled their arguments as a challenge to the existence of a prima facie case of unpatentability of the claims at issue (App. Br. 21–43).

However, it is well settled that:

[The USPTO] satisfies its initial burden of production by adequately explain[ing] the shortcomings it perceives so that the applicant is properly notified and able to respond. In other words, the PTO carries its procedural burden of establishing a prima facie case when its rejection satisfies 35 U.S.C. § 132, in notify[ing] the applicant . . . [by] stating the reasons for [its] rejection, or objection or requirement, together with such information and references as may be useful in judging of the propriety of continuing the prosecution of [the] application.

In re Jung, 637 F.3d 1356, 1362 (Fed. Cir. 2011) (internal citations and quotation marks omitted). We agree with the Examiner.

The Examiner found Kenedy discloses a consumer contributing samples and describing attributes and epigenetic information is determined from the contributions and descriptions, which is sufficient to read on receiving epigenetic information associated with at least one individual. Ans. 7. In addition, the Examiner found Kenedy discloses a formula using attributes of a user to calculate absolute risk, which discloses calculating a risk utilizing the epigenetic information. *Id.* The Examiner also found Kenedy discloses creating a tabulated report for viewing by a consumer, agent, physician, patient, or consumer to predict a predisposition, which discloses transferring at least a portion of the risk utilizing the epigenetic information. *Id.*

As explained in *Jung*, 637 F.3d at 1356, the Examiner's findings and explanations would have put any reasonable Applicants on notice of the Examiner's rejection, and given them ample information with which to counter the grounds of rejection, which is all that is required to establish a prima facie case of unpatentability. In short, the Examiner has satisfied the initial burden of production by combining the references to establish a case of obviousness. The burden then shifts to Appellants to rebut the Examiner's case.

In order to rebut a prima facie case of unpatentability, Appellants must distinctly and specifically point out the supposed Examiner errors, and the specific distinctions believed to render the claims patentable over the applied references. *See* 37 C.F.R. § 41.37(c)(vii) (2010) ("A statement which merely points out what a claim recites will not be considered an

argument for separate patentability of the claim.”); *see also In re Lovin*, 652 F.3d 1349, 1357 (Fed. Cir. 2011) (“[W]e hold that the Board reasonably interpreted Rule 41.37 to require more substantive arguments in an appeal brief than a mere recitation of the claim elements and a naked assertion that the corresponding elements were not found in the prior art.”); *cf. In re Baxter Travenol Labs.*, 952 F.2d 388, 391 (Fed. Cir. 1991) (“It is not the function of this court to examine the claims in greater detail than argued by an appellant, looking for [patentable] distinctions over the prior art.”).

Appellants have failed to carry their burden. Appellants generally assert that the claims define a patentable invention because the Examiner has failed to establish a *prima facie* case of unpatentability, but fail to articulate with any specificity what gaps exist between the cited references and the claims. Appellants’ assertion generally includes the following: recite the disputed claim, duplicate the Examiner’s statement of the rejection, further duplicate the cited portions of the prior art references, and contend—without adequate analysis of the cited portions of the prior art—that the duplicated language in the prior art does not meet the disputed claim limitations. *See generally* App. Br. 43-54.

Additionally, Appellants fail to persuade us of error because for each of the claims, although the cited text does not repeat the recited claim limitation verbatim, one skilled in the art would understand the recited claim limitation encompasses the disclosure cited by the Examiner. *See In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990) (whether a reference teaches a claim limitation “is not an ‘ipsissimis verbis’ test”).

Moreover, because we conclude that the Examiner provided an adequate evidentiary basis for finding anticipation, we are not persuaded that

the rejection was improperly based on a hindsight analysis, personal knowledge, or official notice, as Appellants argue. *See* App. Br. 53–54.

Accordingly, for the reasons stated *supra*, we sustain the Examiner’s rejection of claim 1 and claims 43, 44–47, 50–57, 59–70, 72, 75–82, 84, and 85, which the Appellants contend are allowable for the same reasons as claim 1.

Rejection of Claim 48 under 35 U.S.C. § 102(e)

Claim 48 recites, “means for receiving information including a cytosine methylation status of CpG positions.” The Examiner found that Kenedy discloses epigenetic modification as a result of methylation of cytosines occurring in CpG dinucleotide motifs. Ans. 8 and 17. Appellants contend the Examiner has not established a *prima facie* case of unpatentability and Kenedy’s disclosure is in the context of epigenetic modification rather than receiving epigenetic information. App. Br. 56–57. We agree with the Examiner.

We conclude the Examiner established a *prima facie* case of unpatentability for at least the reasons stated *supra* in the discussion of claim 1. Further, the Examiner found that Kenedy discloses bisulfate sequencing (Ans. 8); bisulfate sequencing uses bisulphite treatment of DNA to determine its pattern of methylation and involves adding a methyl group to the carbon 5 position of cytosine residues of CpG dinucleotide motifs; bisulfite treatment introduces specific changes in DNA sequence that depend on methylation status of individual cytosine residues of CpG dinucleotide motifs, which is sufficient to read on receiving information including a

cytosine methylation status of CpG dinucleotide motifs. Ans. 8 (citing Kenedy ¶ 40).

Accordingly, for the reasons stated *supra*, we sustain the Examiner's rejection of claim 48.

Rejection of Claim 49 under 35 U.S.C. § 102(e)

Claim 49 recites, “means for receiving information including a histone modification status.” The Examiner found that Kenedy discloses histone acetylation states of chromatin. Ans. 8 and 17–18. Appellants contend the Examiner has not established a prima facie case of unpatentability and Kenedy's disclosure takes place in the context of epigenetic modification and not receiving epigenetic information. App. Br. 57–59. We agree with the Examiner.

We conclude the Examiner established a prima facie case of unpatentability for at least the reasons stated *supra* in the discussion of claim 1. Further, the Examiner's finding of histone acetylation states of chromatin discloses histone modification status because acetylation is a postranslational modification. Ans. 8.

Accordingly, for the reasons stated *supra*, we sustain the Examiner's rejection of claim 49.

Rejection of Claim 58 under 35 U.S.C. § 102(e)

Claim 58 recites, “means for underwriting a risk at least partially based on the epigenetic information.” The Examiner found that Kenedy discloses calculating absolute risk. Ans. 9 and 18. Appellants contend Kenedy fails to disclose a means for underwriting a risk at least partially

based on the epigenetic information. App. Br. 59–62. We agree with the Appellant.

Kenedy merely discloses calculating an absolute risk and creating a tabulated report for viewing by a consumer, agent, physician, patient, or consumer to predict a predisposition. *See* Kenedy, Fig. 12 and ¶¶ 40–42, 157. Thus, Kenedy fails to disclose *underwriting* a risk at least partially based on the epigenetic information.

Accordingly, for the reasons stated *supra*, we do not sustain the Examiner’s rejection of claim 58.

NEW GROUNDS OF REJECTION

Within out authority under 37 C.F.R. § 41.50(b), we enter new ground of rejection for claim 1 under 35 U.S.C. § 101. Claim 1 is rejected for the reasons discussed *supra* regarding the rejection under of 35 U.S.C. § 101 of claims 43–70, 72, 75–83, and 85.

Accordingly, for the reasons stated *supra*, we conclude claim 1 is directed to non-statutory subject matter under 35 U.S.C. § 101.

Within our authority under 37 C.F.R. § 41.50(b), we enter a new ground of rejection for claim 58 under 35 U.S.C. § 103(a).

Regarding claim 58, Kenedy is silent as to underwriting. We find that Apfeld¹⁷ is analogous to Kenedy because Apfeld also teaches epigenetic information. *See* Apfeld, ¶¶ 70, 88, 92; abstract. We find that Apfeld teaches a premium for insurance is evaluated as a function of an indicator

¹⁷ Apfeld was submitted to the USPTO by Appellants in an Information Disclosure Statement filed September 11, 2008.

parameter; the indicator parameter can be a function of the result of evaluating ATP and AMP that includes epigenetic modification that is used as an underwriting process for life insurance, which teaches underwriting a risk at least partially based on the epigenetic information. *See* Apfeld, ¶¶ 287, 291. Thus, we find that a person of ordinary skill in the art at the time the invention was made would have been motivated to modify the calculated risk based on epigenetic information provided to the agent of Kenedy (*See* Kenedy, ¶ 157) to include an underwriting process to provide customers with a means to obtain a life insurance policy. In other words, the motivation to combine the teachings of Kenedy and Apfeld is to provide a system that effectively generates life insurance policies at appropriate costs based on one's epigenetic information.

Accordingly, for the reasons stated *supra*, we conclude claim 58 is unpatentable under 35 U.S.C. § 103(a) over the combination of Kenedy and Apfeld.

CONCLUSION

We are persuaded that the Examiner did not err in finding that claims 43–70, 72, 75–83, and 85 are non-statutory.

We are persuaded that the Examiner erred in finding that claims 43–70, 72, 75–83, and 85 are indefinite.

We are persuaded that the Examiner did not err in finding that Kenedy discloses the features of claims 1, 43, 48, 49, and 85.

We are persuaded that the Examiner erred in finding that Kenedy discloses the features of claim 58.

We find that claim 1 is directed to non-statutory subject matter.

We are persuaded that claim 58 is unpatentable over the combination of Kenedy and Apfeld.

SUMMARY

The Examiner's decision to reject claims 43–70, 72, 75–83, and 85 under 35 U.S.C. § 101 is affirmed.

The Examiner's decision to reject claims 43–70, 72, 75–83, and 85 under 35 U.S.C. § 112, second paragraph is reversed.

The Examiner's decision to reject claims 1, 43–57, 59–70, 72, 75–82, 84, and 85 under 35 U.S.C. §§ 102(e) and 103(a) is affirmed.

The Examiner's decision to reject claim 58 under 35 U.S.C. § 102(e) is reversed.

We enter a new ground of rejection for claim 1 under 35 U.S.C. § 101.

We enter a new ground of rejection for claim 58 under 35 U.S.C. § 103(a).

TIME PERIOD

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).

This decision contains new grounds of rejection pursuant to 37 C.F.R. § 41.50(b). 37 C.F.R. § 41.50(b) provides "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review." 37 CFR § 41.50(b) also provides that the appellant, **WITHIN TWO MONTHS FROM THE DATE OF THE DECISION**, must exercise one of

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the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution*. Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner. . . .

(2) *Request rehearing*. Request that the proceeding be reheard under § 41.52 by the Board upon the same record

AFFIRMED
37 C.F.R. § 41.50(b)

ELD