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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TECK SING TIE and SHAUL O. BACKAL

Appeal 2012-000578
Application 10/306,072[1]
Technology Center 2400

Before ST. JOHN COURTENAY III, THU A. DANG, and
LARRY J. HUME, *Administrative Patent Judges*.

HUME, *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, 5, 9–13 and 18–30. Appellants have previously canceled claims 2–4, 6–8, and 14–17. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

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[1] According to Appellants, the real party in interest is Meganet Corporation. App. Br. 2.

STATEMENT OF THE CASE[2]

The Invention

Appellants' "invention relates to prime and composite number computing and applications of the same, e.g., in the area of data security." Spec. 1, ll. 8–9 ("Field of the Invention").

Exemplary Claim

Claim 1, reproduced below, is representative of the subject matter on appeal (*emphasis* added):

> 1. A computer-implemented method for generating prime numbers for use in encryption via a computing system, the method comprising the steps of:
>
> determining at least one element of a T-sequence, the T-sequence being one of a family of related non-montonic *[sic]* sequences and being defined as: $T_0^l = 2$, $T_1^l = l$ and $T_{n+1}^l = l \cdot T_n^l - T_{n-1}^l$, wherein the subscript denotes the n*th* term while the superscript denotes the order *l*, such that the zeroth term is 2 and the first term is *l*, and wherein *l* =3 is the first T-sequence, and each successive term is defined as follows:
> $T_0^3 - 2$, $T_1^3 = 3$, $T_2^3 = 7$, $T_3^3 = 18, \ldots$, $T_{n+1}^3 = 3 \cdot T_n^3 - T_{n-1}^3$;
>
> using said at least one element to determine primality of at least one arbitrary positive integer by performing a binary decomposition on the at least one arbitrary positive integer in polynomial time; and

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[2] Our decision relies upon Appellants' Appeal Brief ("App. Br.," filed June 7, 2011); Reply Brief ("Reply Br.," filed July 27, 2011); Examiner's Answer ("Ans.," mailed July 8, 2011); Final Office Action ("Final Act.," mailed Aug. 6, 2010); and the original Specification ("Spec.," filed Nov. 27, 2002).

> depending on said primality, taking an action the effect of which is to enhance or degrade data security within a computer system or network.

Rejections on Appeal[3]

R1. Claims 1, 5, 9–13, and 18–26 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Ans. 4.

R2. Claims 1, 5, 9–13, and 18–30 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. *Id.*

R3. Claims 1, 5, 9–13, and 18–30 stand rejected under 35 U.S.C. § 112, first paragraph, as lacking an enabling disclosure. Ans. 5.

GROUPING OF CLAIMS

Based on Appellants' arguments (App. Br. 7–10), we decide the appeal of each of rejections R1, R2, and R3 on the basis of representative claim 1.

ISSUES AND ANALYSIS

We only consider those arguments actually made by Appellants in reaching this decision, and we do not consider arguments which Appellants could have made but chose not to make in the Briefs so that any such arguments are deemed to be waived. 37 C.F.R. § 41.37(c)(1)(vii).

With respect to the rejections under § 112, we agree with Appellants contentions and do not sustain the written description and enablement

[3] We note the Examiner withdrew all rejections under 35 U.S.C. § 103(a). Ans. 3.

rejections. However, we disagree with Appellants' contentions with respect to the § 101 rejection of claims 1, 5, 9–13, and 18–30, and we adopt as our own (1) the findings and reasons set forth by the Examiner in the action from which this appeal is taken and (2) the reasons and rebuttals set forth by the Examiner in the Examiner's Answer in response to Appellants' Arguments. We highlight and address specific findings and arguments regarding claim 1 for emphasis as follows.

1. § 101 Rejection of Claims 1, 5, 9–13, and 18–26

Issue 1

Appellants argue (App. Br. 7–8; Reply Br. 1–2) the Examiner's rejection of claim 1 under 35 U.S.C. § 101 as being directed to non-statutory subject matter is in error. These contentions present us with the following issue:

Did the Examiner err in concluding claim 1 is non-statutory under § 101?

Analysis

Appellants arguments are summarized by their contention in the Reply Brief, i.e.,

> Contrary to the Examiner's Answer, the computer-implemented methods of Claims 1, 5, and 13 are specifically tied to a machine, namely, to a computing system. In re Bilski, 545 F.2d 943 (Fed. Cir. 2008). Each of the independent claims specifically recites a computer-implemented method of generating a prime number for data encryption via a computing system, which specifically ties the computer implemented methods to a particular machine as required by Bilski.

Reply Br. 2. Substantially identical arguments were set forth in the Appeal Brief. App. Br. 8.

The Examiner concludes,

> [even assuming, *arguendo*,] the computing system is a machine or manufacture, the claim fails to tie the method to the computing system. The only place that the "computing system" appears in the claim is in the preamble. The method is for generating prime numbers for ***use*** in encryption via a computing system. Therefore, the method is useful in performing encryption via the computer system. Nothing in the claim, particularly the steps, actually involves the computing system in performing or affecting anything.

Ans. 9. We agree with the Examiner's claim construction and legal conclusion of patent ineligibility under § 101.

We agree because the Supreme Court recently reaffirmed that fundamental concepts, by themselves, are ineligible abstract ideas under § 101. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2358 (2014). In addition, our reviewing court has provided additional guidance on the issue of statutory subject matter. In *Digitech*, the Federal Circuit held claims to a process of organizing information through mathematical correlations was not tied to a specific structure or machine, and was thus an abstract idea and ineligible under § 101. *Digitech Image Tech., LLC v. Electr. for Imaging, Inc. et al.*, No. 13-1600, 2014 WL 3377201, slip op. 11 (Fed. Cir. July 11, 2014), *aff'd.* The Federal circuit further noted "[a] claim may be eligible if it includes additional inventive features such that the claim scope does not solely capture the abstract idea." *Id.* (citing *Alice Corp.*, 134 S. Ct. at 2355. However, a claim reciting an abstract idea does not become "eligible 'merely by adding the words 'apply it.'" *Id.* (citing *Bancorp Servs.,*

LLC v. Sun Life Assurance Co. of Can. (U.S.), 687 F.3d 1266, 1276 (Fed. Cir. 2012).

We conclude claim 1 is an abstract idea (i.e., determining primality of an integer) with only a tangential, if any, relationship to a specific structure or machine. We therefore conclude claim 1 is ineligible for patent protection under § 101. In particular, we note, similar to the Examiner's finding cited above, nothing in the body of the claim is tied to the "computing system" recited in the preamble, such that the preamble of claim 1 may, under the broadest reasonable interpretation standard, be interpreted as a statement of intended use, i.e., "for use in encryption" that is accomplished "via a computing system," and which, under the broadest reasonable interpretation, does not necessarily require the "method for generating prime numbers" being carried out by the recited "computing system."[4]

"An intended use or purpose usually will not limit the scope of the claim because such statements usually do no more than define a context in which the invention operates." *Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp.*, 320 F.3d 1339, 1345 (Fed. Cir. 2003). Although "[s]uch statements often . . . appear in the claim's preamble . . ." *In re*

[4] During examination, a claim must be given its broadest reasonable interpretation consistent with the Specification as it would be interpreted by one of ordinary skill in the art. Because the applicant has the opportunity to amend claims during prosecution, giving a claim its broadest reasonable interpretation will reduce the possibility that the claim, once issued, will be interpreted more broadly than is justified. *In re Yamamoto*, 740 F.2d 1569, 1571 (Fed. Cir. 1984); *In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989) ("During patent examination the pending claims must be interpreted as broadly as their terms reasonably allow.").

Stencel, 828 F.2d 751, 754 (Fed. Cir. 1987), a statement of intended use or purpose can appear elsewhere in a claim. *Id.*

We conclude Appellants' recitation of "[a] computer-implemented method for generating prime numbers for use in encryption via a computing system" is merely a statement of intended use, and we accord it no patentable weight, particularly with respect to the recitation of "via a computer system." Even assuming, *arguendo*, our reviewing court would grant patentable weight to the "for use" recitation, we find the claims, as a whole, are directed to an abstract idea as discussed above in the *Alice* and *Digitech* decisions.

Accordingly, Appellants have not provided sufficient evidence or argument to persuade us of any reversible error in the Examiner's claim construction and legal conclusions. Therefore, we sustain the Examiner's statutory subject matter rejection of independent claim 1. As Appellants have not provided separate arguments with respect to independent claims 5 and 13, or dependent claims 9-12 and 18-26, rejected on the same basis as claim 1, we similarly sustain the Examiner's rejection of these claims under 35 U.S.C. § 101.[5]

[5] With respect to dependent claims 27–30, in the event of further prosecution, we leave it to the Examiner to determine whether these claims comply with the requirements of § 101 in light of the *Alice* and *Digitech* decisions cited *supra*.

2. § 112, ¶1 Written Description Rejection: Claims 1, 5, 9–13 and 18–30

Issue 2

Appellants argue (App. Br. 8; Reply Br. 3–4) the Examiner's rejection of claim 1 under 35 U.S.C. § 112, first paragraph as lacking written description support is in error. These contentions present us with the following issue:

Did the Examiner err in finding the limitation of "using said at least one element to determine primality of at least one arbitrary positive integer by performing a binary decomposition on the at least one arbitrary positive integer in polynomial time" lacks written description support in the originally-filed disclosure?

Analysis

Appellants contend "[t]he specification provides support for the phrase 'polynomial time' throughout the entire specification. For example, the specification states . . . on page 2: 'Using a new mathematical technique called the T-sequence, the inventor has discovered a powerful primality testing method that meets all four conditions above.'" Reply Br. 3. Among the four conditions cited by Appellants (Reply Br. 4) is a "**Polynomial-time algorithm**" (*id.* at 3–4), which is further disclosed at page 9 of the Specification, i.e., "[n]ote that these small r residue computations can be skipped and the n residues computed directly for primality testing and I-type decisions whenever r is indeterminate. The whole-algorithm will still be in **polynomial time owing to binary decomposition**, which ensures that it is in polynomial time."

We disagree with the Examiner's finding that claim 1's recitation of "performing a binary decomposition on the at least one arbitrary positive integer in polynomial time" lacks written description support under § 112, first paragraph (Ans. 4, 5). We find at least page 4 of Appellants' Specification provides written description support for the disputed limitation. Therefore, we find the portions of Appellants' Specification relied upon reasonably convey to those skilled in the art that the inventors had possession of the claimed subject matter as of the filing date.

Accordingly, we cannot sustain the Examiner's written description support rejection of independent claim 1 under § 112.

For essentially the same reasons argued by Appellants, cited *supra*, we reverse the Examiner's rejection of independent claims 5 and 13, which recite the disputed limitation in commensurate form. For the same reasons, we also reverse the rejections of dependent claims 9–12 and 18–30 that depend therefrom.

3. § 112, ¶ 1 Enablement Rejection: Claims 1, 5, 9–13, and 18–30

Issue 3

Appellants argue (App. Br. 9–10; Reply Br. 4–5) the Examiner's rejection of claim 1 under 35 U.S.C. § 112, first paragraph, as lacking an enabling disclosure, is in error. These contentions present us with the following issue:

Did the Examiner err in concluding Appellants' disclosure does not enable claim 1 because Appellants do not provide proof of the validity of the

various equations disclosed in the Specification and variously recited in claim 1?

Analysis

Appellants contend:

> The specification and drawings provide sufficient information to enable one skilled in the art to make and use the claimed invention. The rejection as set forth in the Examiner's Answer is that the Applicants have failed to provide proof of the validity of the equations, which does not equate to lack of enablement. As set forth in the specification, for example, with reference to FIG. 2, the specification describes a flowchart illustrating a primality testing algorithm in accordance with an exemplary embodiment, and which is recited in Claims 13-23. The test of enablement does not require proof, rather, the test is whether one reasonably skilled in the art could make or used the invention from the disclosure.

Reply Br. 5. We agree with Appellants' arguments.

We agree with Appellants because the Examiner has not fully developed the record to show undue experimentation would be required by a person of ordinary skill in the art to make and use the claimed invention. Any analysis of whether a particular claim is supported by the disclosure in an application requires a determination of whether that disclosure, when filed, contained sufficient information regarding the subject matter of the claims so as to enable one skilled in the pertinent art to make and use the claimed invention. The statute (35 U.S.C. § 112) has been interpreted to require that the claimed invention be enabled so that any person skilled in the art can make and use the invention without undue experimentation. *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988).

"Factors to be considered in determining whether a disclosure would require undue experimentation . . . include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims." *Id.*

To affirm the Examiner would require us to engage in speculation, which we decline to do because the Examiner has not provided any analysis using the *Wands* factors cited above.

Accordingly, Appellants have provided sufficient evidence and argument to persuade us of reversible error in the Examiner's legal conclusions. Therefore, we cannot sustain the Examiner's enablement rejection of independent claim 1 under § 112.

For essentially the same reasons argued by Appellants, cited *supra*, we reverse the Examiner's rejection of independent claims 5 and 13, which recite the disputed limitation in commensurate form. For the same reasons, we also reverse the rejections of dependent claims 9–12 and 18–30 that depend therefrom.

CONCLUSIONS[6]

(1) The Examiner did not err with respect to the rejection of claims 1, 5, 9–13, and 18–26 under 35 U.S.C. § 101, and we sustain the rejection.

(2) The Examiner erred with respect to the rejection of claims 1, 5, 9–13, and 18–30 under 35 U.S.C. § 112, first paragraph (written description), and we do not sustain the rejection.

(3) The Examiner erred with respect to the rejection of claims 1, 5, 9–13, and 18–30 under 35 U.S.C. § 112, first paragraph (enablement), and we do not sustain the rejection.

DECISION

We affirm the Examiner's decision rejecting claims 1, 5, 9–13, and 18-26 under § 101.

We reverse the Examiner's decision rejecting claims 1, 5, 9–13, and 18-30 under § 112, first paragraph.

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[6] In the event of further prosecution, we note claims 5, 9, 25, and 29 are hybrid claims which are directed to methods in which apparatus elements are recited in means plus function form under 35 U.S.C. § 112, sixth paragraph, (e.g., "means for generating candidate numbers)." Lacking recitation of proper method claim steps under 112, sixth paragraph, i.e., "step for," we leave it to the Examiner to determine whether these claims comply with the requirements of 35 U.S.C. § 112, second paragraph. *See IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005) (noting that when a claim recites both a system and a method for using that system, it is unclear when infringement occurs); *and see In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303, 1318 (Fed. Cir. 2011). In each of these cases, the Federal Circuit held claims indefinite for combining two classes of invention.

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) (2011).

AFFIRMED-IN-PART

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