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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DAVID A. STENGER and JENNIFER THORNTON

Appeal 2017-007573
Application 13/211,382¹
Technology Center 1600

Before DONALD E. ADAMS, FRANCISCO C. PRATS, and
DAVID COTTA, *Administrative Patent Judges*.

ADAMS, *Administrative Patent Judge*.

DECISION ON APPEAL

This Appeal under 35 U.S.C. § 134(a) involves claims 1 and 23 (Final Act.² 2).³ Examiner entered a rejection under 35 U.S.C. § 101. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ Appellants identify the real party in interest as “The Government of the United States of America, as represented by the Secretary of the Navy” (App. Br. 2).

² Office Action mailed May 4, 2016.

³ Pending claims 2, 3, and 8–22 stand withdrawn from consideration (Final Act. 2).

STATEMENT OF THE CASE

Appellants' disclosure "is relevant to a variety of automated selection systems including automated sub-sequence selection systems for usage with any method group of nucleic acid or protein sequences generated by alternative methods" (Spec. ¶ 3). Appellants' claim 1 is representative and reproduced below:

1. A method for selecting a biological subsequence for input to a query for identification of a predetermined biological sequence, comprising steps of:

performing a resequencing microarray assay on a biological sample derived from a clinical sample suspected of containing a pathogen causing a disease;

obtaining biological sequence data from the resequencing microarray;

storing the biological sequence data in a computer memory;

selecting with a processor-implemented process a subsequence from the biological sequence data by;

selecting a fixed window size parameter corresponding to a number of base calls in the biological sequence data;

calculating the percentage of valid base calls contained within a viewing window of the biological sequence data, the size of the window corresponding to the window size parameter;

if the percentage of valid base calls is not at least a first predetermined threshold, sliding the viewing window a first number of base calls one or more times along the biological sequence data until a recalculated percentage of valid base calls in the viewing window is at least the first predetermined threshold;

marking the beginning of the biological subsequence at the beginning of the viewing window;

sliding the viewing window a second number of base calls along the biological sequence data;

calculating the percentage of valid base calls contained within the viewing window;

if the percentage of valid base calls is at least a second predetermined threshold, sliding the viewing window a second number of base calls one or more times along the biological sequence data until a recalculated percentage of valid base calls in the viewing window is not at least the second predetermined threshold;

marking the end of the biological subsequence at the end of the viewing window; and

shifting the beginning and end of the biological subsequence to remove any non-base calls from the beginning and end of the biological subsequence without removing valid base calls;

submitting the biological subsequence in a computer-based query to a biological sequence database to identify the predetermined biological sequence and the pathogen; and

diagnosing the disease on the basis of the pathogen.

(App. Br. 8–9.)

The claims stand rejected as follows:

Claims 1 and 23 stand rejected under 35 U.S.C. § 101.

ISSUE

Does the evidence of record support Examiner’s finding that Appellants’ claimed invention is directed to patent ineligible subject matter?

ANALYSIS

The scope of 35 U.S.C. § 101 “is subject to an implicit exception for ‘laws of nature, natural phenomena, and abstract ideas,’ which are not

patentable.” *Intellectual Ventures I LLC v. Capital One Financial Corp.*, 850 F.3d 1332, 1338 (Fed. Cir. 2017), citing *Alice Corp. Pty. Ltd. v. CLS Bank Int’l.*, 134 S. Ct. 2347, 2355 (2014); see also *Mayo Collaborative Services v. Prometheus Labs., Inc.*, 566 U.S. 66, 70 (2012) (“‘[L]aws of nature, natural phenomena, and abstract ideas’ are not patentable” (citation omitted, alteration original)).

Alice, sets forth the following two-step analysis for determining patent eligibility under Section 101:

First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts [e.g., a law of nature, natural phenomenon, or abstract idea]. 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 (alterations, citations, and quotation marks omitted).

With respect to *Alice*’s first step, Examiner finds that, when considered as a whole, Appellants’ claimed invention involves a “‘process implemented function’ [that] serves only to describe an abstract idea in the form of a series of computational and algorithmic operations to be performed on the biological data, per se” (Final Act. 3; Ans. 3). In this regard, Examiner finds that Appellants’ “claimed invention is essentially directed to an abstract idea of microarray data analysis, applied merely using a generic computer (via a ‘processor implemented process’)” (Final Act. 4; Ans. 3). Thus, Appellants’ claimed invention comprises, at best, the steps of collecting, manipulating, and displaying data. “[A]n invention directed to

collection, manipulation, and display of data [is] an abstract process.”

Intellectual Ventures, 850 F.3d at 1340; *see generally id.* at 1340–41.

Without additional limitations, a process that employs mathematical algorithms to manipulate existing information to generate additional information is not patent eligible. “If a claim is directed essentially to a method of calculating, using a mathematical formula, even if the solution is for a specific purpose, the claimed method is nonstatutory.” *Parker v. Flook*, 437 U.S. 584, 595[] (1978) (internal quotations omitted).

Digitech Image Techs., LLC v. Elecs. For Imaging, Inc., 758 F.3d 1344, 1351 (Fed. Cir. 2014). *See also FairWarning IP, LLC v. Iatric Systems, Inc.*, 839 F.3d 1089, 1093 (Fed. Cir. 2016) (“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); *cf.* App. Br. 4–5 (Appellants’ contend that their “process brings about a technological improvement by[, *inter alia*,] saving time for the *researcher who* does not have to *manually select sequences* or review irrelevant search results” (emphasis added)).

With respect to *Alice*’s second step, the search for an inventive concept, Examiner finds that Appellants’ claims do not include additional elements or steps that are sufficient to amount to significantly more than the judicial exception (*see* Final Act. 3–5; *see* Ans. 2–4). To the contrary, Examiner finds that the non-processor implemented “steps only involve conventional and routine microarray data collection procedures and . . . do not involve any specific technological improvement” (Final Act. 3; Ans. 3). In this regard, Examiner finds that these non-processor implemented steps “fail to delineate any additional elements that are sufficient to amount to significantly more than the judicial exception” (Final Act. 4; Ans. 4). *See*

Genetic Techs. Ltd. v. Merial L.L.C., 818 F.3d 1369, 1376 (Fed. Cir. 2016) (Appellants “must provide something inventive, beyond mere well-understood, routine, conventional activity”) (quotation omitted).

In addition, Examiner finds that Appellants’ claims fail to delineate any specific or particular technological improvement” (Final Act. 4; Ans. 4). *See Enfish LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–6 (Fed. Cir. 2016).

For the foregoing reasons, we find no error in Examiner’s finding that Appellants’ claimed invention is directed to patent ineligible subject matter.

Appellants recognize that the selection of a “subsequence had been performed manually in the past,” which supports Examiner’s finding that the non-processor implemented “steps [] involve conventional and routine [] data collection procedures and . . . do not involve any specific technological improvement” (App. Br. 6; *see* Reply Br. 1–2 (“The purpose [of Appellants’ claimed invention] is to identify a pathogen that is already known to include sequence(s) that sufficiently match the selected sequence,” wherein “[t]he connection between the pathogen and the sequence(s) must already be known to have been included in the database”); *cf.* Final Act. 3; Ans. 3).

Appellants contend, however, that “there is no showing that anyone had made the selection according to [Appellants’] claimed steps,” wherein their “processor-implemented steps are a new, improved method over the prior art manual method, and they do not preempt all methods for improving the selection of the subsequences” (App. Br. 6; *see* Reply Br. 2 (“The claimed processor-implemented steps are a new, improved method over the prior art manual method, and they do not preempt all methods for improving the selection of the subsequences”)). We find, however, that “simply implementing a mathematical principle on a physical machine, namely a

computer, [is] not a patentable application of that principle.” *Mayo*, 566 U.S. at 84–86.

We are not persuaded by Appellants’ contentions relating to *McRO, Inc. v. Bandai Namco Games America, Inc.*, 837 F.3d 1299 (Fed. Cir. 2016). See App. Br. 5–6; Reply Br. 2. In *McRO*, “the automation goes beyond merely ‘organizing [existing] information into a new form’ or carrying out a fundamental economic practice,” or, as in this case, performing known manual methods of manipulating sequence data on a computer. *McRO*, 837 F.3d at 1315 (alteration original). To the contrary, in *McRO* “[t]he claimed process use[d] a combined order of specific rules that renders information into a specific format that is then used and applied to create desired results: a sequence of synchronized, animated characters.” *McRO*, 837 F.3d at 1315. Thus, in *McRO* “[t]he claim use[d] the limited rules in a process specifically designed to achieve an improved technological result in conventional industry practice.” *Id.* at 1316. In contrast, as Appellants’ concede, in their discussion of so-called manual methods, which were known in the art, that the abstract ideas embedded in their claim simply facilitates the use of “a computer to accelerate an ineligible mental process⁴[, which] does not make that process patent-eligible.” *Bancorp Servs., L.L.C. v. Sun Life*

⁴ Appellants’ contend that their “process[, *inter alia*,] brings about a technological improvement by saving time for the research who does not have to manually select sequences or review irrelevant search results” (App. Br. 4). We recognize Appellants’ contention that their claimed process also “sav[es] computer resources by not performing useless searches[] and improve[s] upon methods of unknown biological sample identification” (*id.* at 4–5). Appellants, however, fail to identify an evidentiary basis on this record to support their contentions. See *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974) (“Attorney’s argument in a brief cannot take the place of evidence”).

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Assurance Co., 687 F.3d 1266, 1279 (Fed. Cir. 2012); *see also FairWarning*, 839 F.3d at 1093 (“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”). Therefore, we are not persuaded by Appellants’ contention that their claimed invention “is not an abstract idea under McRO” and “[a]s such there is no need to proceed to *Alice* step two” (App. Br. 6; *see also* Reply Br. 2).

CONCLUSION OF LAW

The evidence of record supports Examiner’s finding that Appellants’ claimed invention is directed to patent ineligible subject matter. The rejection of claim 1 under 35 U.S.C. § 101 is affirmed. Appellants’ Claim 23 is not separately argued and falls with Appellants’ claim 1.

TIME PERIOD FOR RESPONSE

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

AFFIRMED